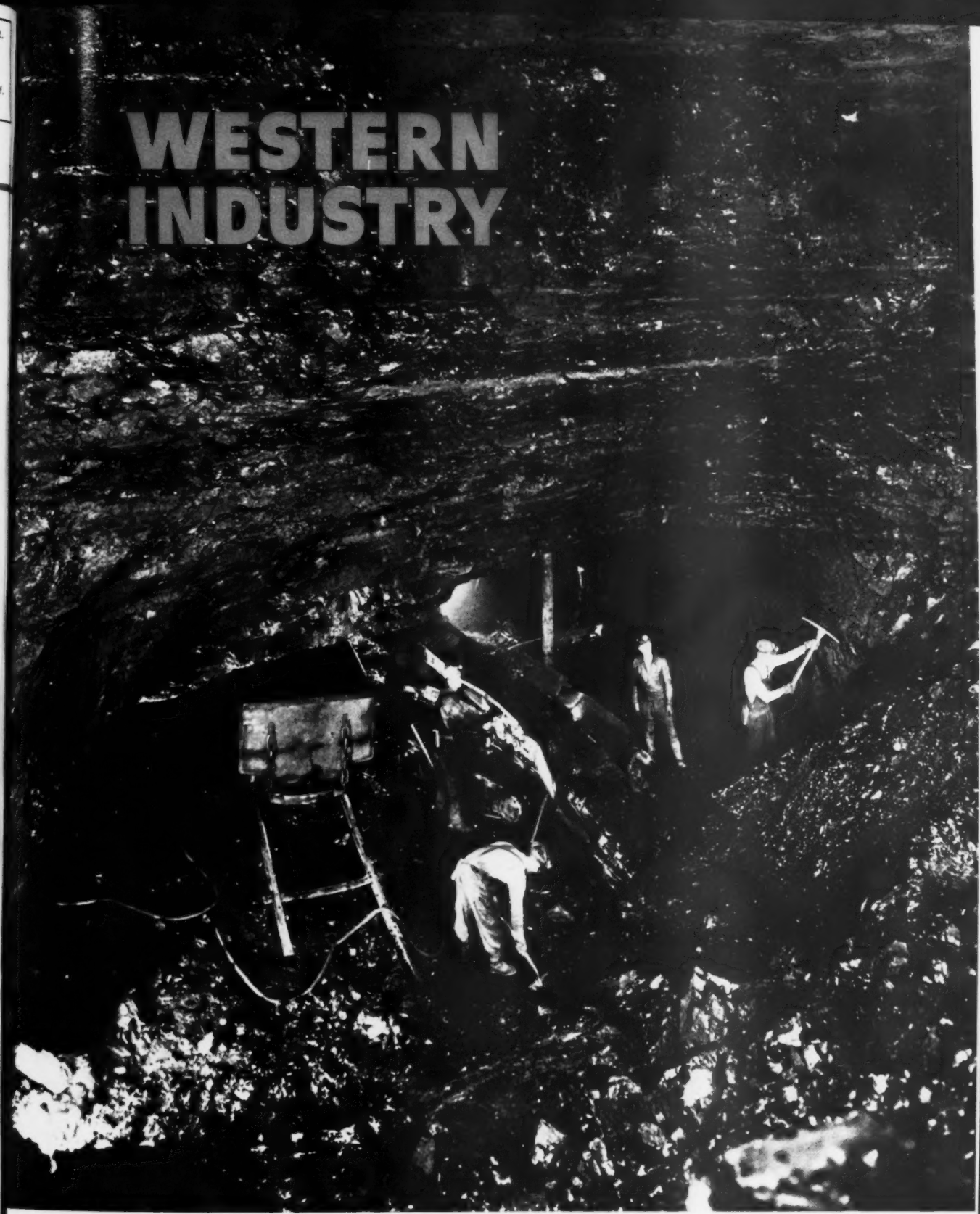
WESTERN INDUSTRY



• Coal is the West's biggest reserve supply of fuel. Here is shown a 30-foot seam in one of Utah's mines. For details see page 5.

IN THIS ISSUE: Governing Lay-Offs Fairly; Ford Wants Suppliers to Profit; Licking Production Bugs BEFORE They Bite; How Plant Policies Affect Materials Handling Costs; Applying Strain Gage Tests to Punch Presses; Production Cost Controls Save Small Plant's Bacon

Thirty-Five Cents VOLUME XII NUMBER 9 **September, 1947**

NOW...

FOR BETTER SERVICE

IN CALIFORNIA

GET

REYNOLDS
THE GREAT NEW SOURCE OF **ALUMINUM**

REYNOLDS METALS

Make it Better
Make it Stronger
Make it Lighter
Make it Easier
with
ALUMINUM

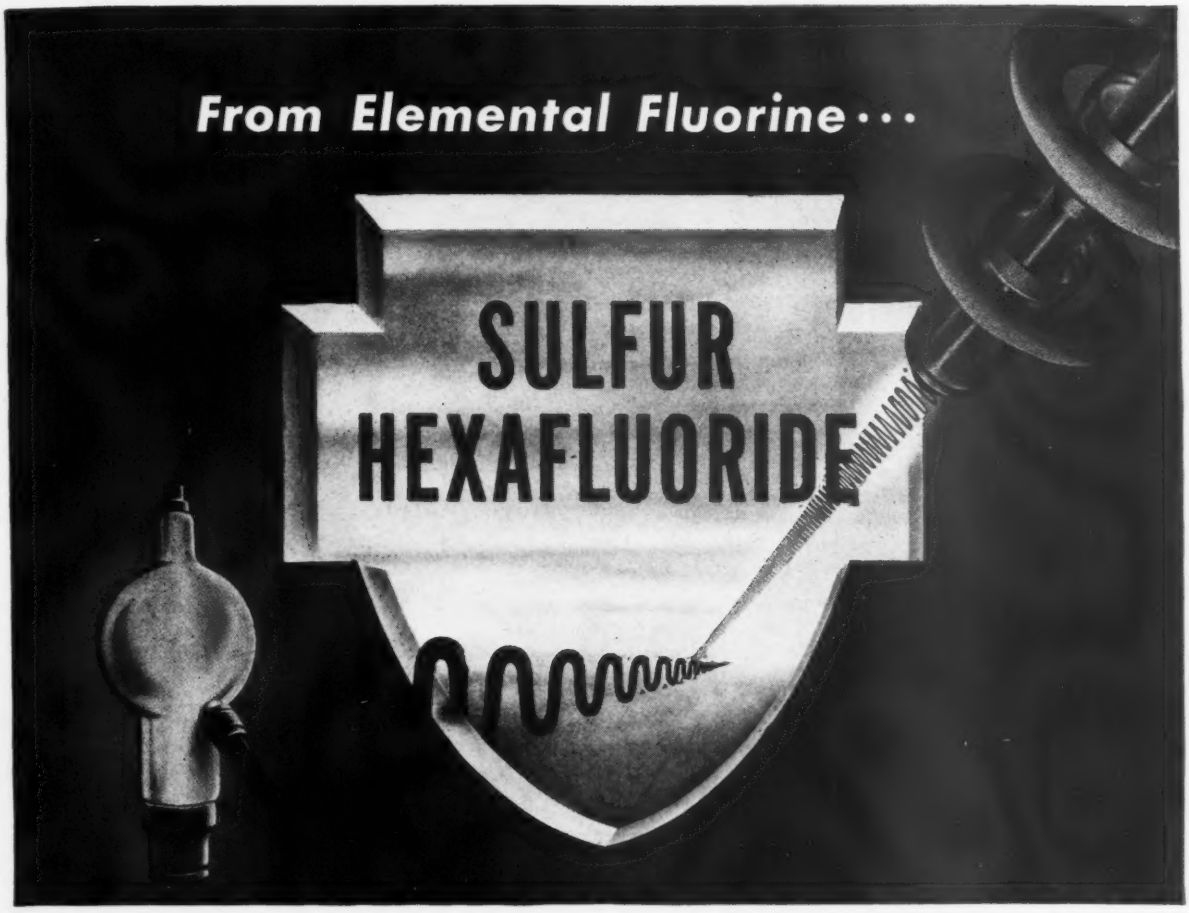
FROM

CAINE STEEL CO. of CALIF.

LOS ANGELES	KI 1211
EMERYVILLE	HU 3-0900
SAN FRANCISCO	EN 10907

LOS ANGELES • EMERYVILLE • SAN FRANCISCO

P.S. SEND FOR NEW MATERIALS & METHODS MANUAL #12. FREE!



— A General Chemical Research Development +

SULFUR HEXAFLUORIDE

Formula: SF_6
Molecular Weight: 146.06
Melting Point: —50.8°C
Sublimation Temperature: —63.8°C
Critical Temperature: 45.6°C
Critical Pressure: 540 p.s.i.a.
Vapor Pressure:

Temp. (°C)	Pressure (p.s.i.a.)
—80	5
—50	34
—20	102
+10	240
+40	481

BASIC CHEMICALS
GENERAL CHEMICAL COMPANY
FOR AMERICAN INDUSTRY

In Sulfur Hexafluoride, General Chemical Research makes another important contribution to fluorine chemistry. This stable dielectric gas is the first commercial chemical produced from elemental fluorine to be offered Industry . . . and fore-runner of many similarly-made fluorine compounds awaiting introduction.

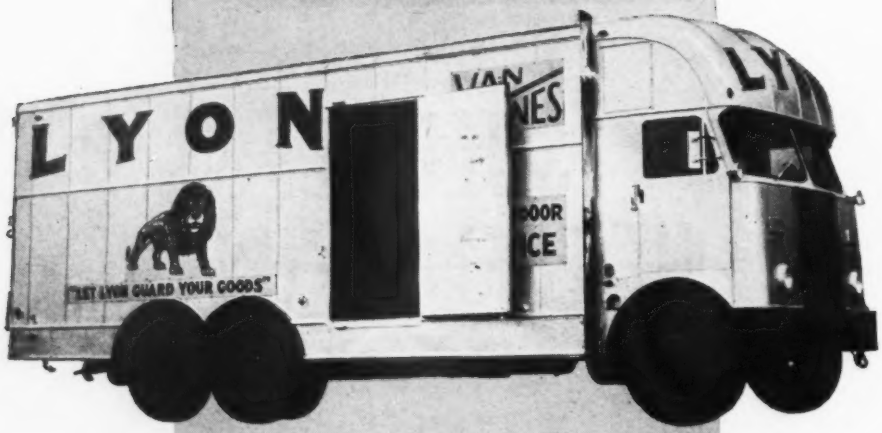
Sulfur Hexafluoride was discovered by Moissan and Lebeau in 1900 as the product of combustion of sulfur in fluorine. It has been found to be remarkably inert and to possess exceptional thermal stability. These characteristics, together with its splendid electrical properties, have led to its present use as a gaseous dielectric in high-voltage equipment.

The physical data presented here may suggest other applications worthy of prompt investigation for your products and processes. For commercial quantities, experimental samples, or more detailed technical information, contact General Chemical Company, Research & Development Division, 40 Rector Street, New York 6, N. Y. Please use business letterhead when writing.

GENERAL CHEMICAL COMPANY
40 Rector Street, New York 6, N. Y.

San Francisco 4, Cal.—235 Montgomery St.—DOuglas 2-0904
Los Angeles 21, Cal.—2461 East 8th St.—Van Dyke 1001
Seattle 1, Wash.—1326 Fifth Avenue—ELiot 5287

MORE PAYLOAD...



BETTER STEERING CONTROL

because it's built with REVERE MAGNESIUM

LYON Van Lines of Los Angeles put into operation several months ago a new van with body and cab structure built entirely of Revere magnesium. A comparison of this van with their largest standard van shows that the empty weight of the magnesium unit is 3000 pounds less, *although the inside capacity is 200 cubic feet more.* The cost of building with magnesium was somewhat higher; but the company estimates that the additional payload and the decrease in dead weight will offset the higher cost during the first year and make the magnesium van a more profitable operation in all succeeding years.

Another advantage of the magnesium construction is better steering control, due to the lower center of gravity. Drivers report that the magnesium van handles very easily even when the load is distributed in positions which would make it impossible to steer a standard van.

If you operate vehicles for highway or air transportation, the light weight and high strength-weight ratio of Revere magnesium alloys can help you save gas, oil, tires and other operating expenses or enable you to carry additional payload. With Revere sheets and standard shapes, any body builder can produce truck panel bodies of magnesium easily and quickly. Readily available for prompt shipment, these Revere materials can be assembled into bodies by means of the simplest fabricating methods.

For further information on Revere magnesium and its ability to save money for you, get in touch with the nearest Revere office.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere. Pacific Coast District Sales Offices in San Francisco, Seattle, Los Angeles

Editor
A. C. PRENDERGAST
Associate Editors
D. F. Stevens
Arnold Kruckman

Editorial Assistants
B. P. Arnold
M. S. Dean

✦

Correspondents

Sterling Gleason
946 Lucile Avenue
Los Angeles 26, Calif.

Henry W. Hough
1151 Humboldt Street
Denver 6, Colo.

O. N. Malmquist
c/o Salt Lake Tribune
Salt Lake City 1, Utah

Northwest Office
D. F. Stevens
2611 Franklin Avenue
Seattle 2, Wash
MInor 0910

Washington Office
Arnold Kruckman
1120 Vermont Avenue, N.W.
Washington 5, D.C.
Telephone DIstrict 8822

✦

Advertising Offices

NEW YORK OFFICE
Ralph E. Dorland, District Manager
2225 Coles Ave., Scotch Plains, N.J.
Telephone Fanwood 2-8112

CHICAGO OFFICE
A. C. Petersen, District Manager
5833 S. Spaulding Ave., Chicago 29
Telephone PROspect 1685

SAN FRANCISCO OFFICE
Harry W. Bucknell, District Manager
503 Market St., San Francisco 5, Calif.
Telephone YUkon 6-1537

LOS ANGELES OFFICE
J. E. Badgley, District Manager
3835 Wilshire Blvd., Los Angeles 5
Telephone FItzroy 9462

35c per Month $4.00 per Year

Published monthly by
KING PUBLICATIONS
503 Market Street
San Francisco 5, California
Phone YUkon 6-1537

Arthur F. King . . . President
Donald F. Forster . Exec. V.-Pres.
L. P. Vrettos . . . . . Treasurer
L. B. King . . . . . Secretary
Ralph P. Dillon . Circulation Mgr.
R. C. Williams . Production Mgr.

Please address all communications to the San Francisco office

✦

Member
Controlled Circulation Audit, Inc.
National Business Papers Assn.

Acceptance under the Act of June 5, 1934.
Authorized January 21, 1947.

Copyright 1947 by King Publications

This Month in

WESTERN INDUSTRY

VOLUME XII SEPTEMBER, 1947 NO. 9

Editorial Page

Editorial Comment 17
Mail Box 17-21

The Western Outlook . . . News . . . Statistics 23-31

Spotlight on the News 33

Articles

Combining Seniority and Merit to Govern Lay-Offs Fairly . . . 35-37
Ford Wants Suppliers to Profit on Making Auto Parts 38-39
Licking Production Bugs BEFORE They Bite 40-42
How Plant Policies Affect Materials Handling Costs 43-45
New Production Techniques:
Applying Strain Gage Tests to Punch Presses;
Dry Ice For Reefer Cars 46-47
Production Cost Controls Save Small Plant's Bacon 48-49

Washington News Letter 50-52

Regional Reviews

Tehachepi to Tijuana 58-61
Sierras to the Sea 62-64
The Continental Divide 65-67
The Pacific Northwest 70-75
The Wasatch Front 76-77

Departments

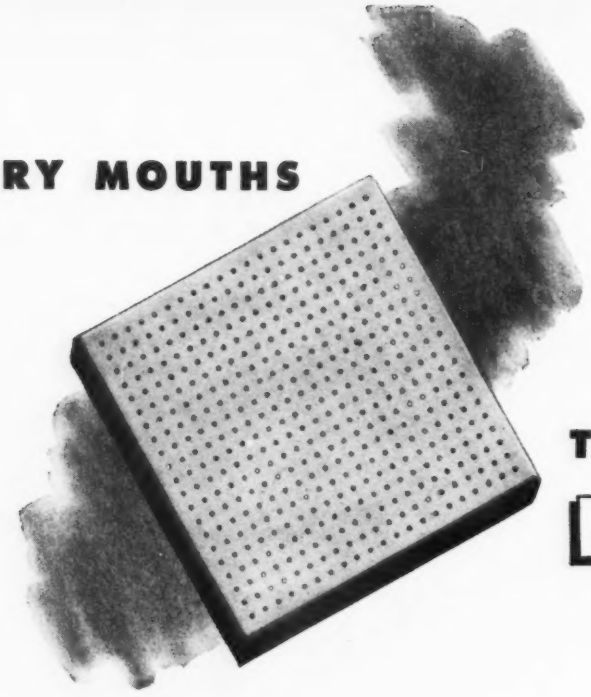
Westerners at Work 53-55
The West on Its Way 81-90
Labor and the Industrial West 78-80
Trade Winds 91-92
Helpful Literature 97
New Methods, Materials, Equipment 93-96

Advertisers' Index 98

Front Cover

Castle Gate Mine No. 2 of Utah Fuel Company, producing from 2,000 to 3,000 tons a day. Rooms are driven 24 ft. wide by 8 ft. high, after which the top coal is shot down for loading by mechanical loaders into mine cars as shown here or into shuttle cars. Picture was taken from the big pile of top coal.

441 HUNGRY MOUTHS



THAT EAT UP NOISE

You're looking at a single Acousti-Celotex* 12" x 12" tile . . . *the* famous perforated fibre tile and most widely used of all sound conditioning materials.

Each of those 441 holes swallows noise . . . digesting it in a labyrinth of cane fibre. Thus sound has no chance to echo. Words remain clear and audible. Listening quality is vastly improved.

Offices, factories—everywhere have remedied their noise problems by Sound Conditioning with Acousti-Celotex fibre tile. Applied directly to ceilings it soaks up noise, and prevents echoes. Its soothing quiet relieves irritating sounds that cause emotional strain. It increases the efficiency and calm of everyone in the room.

Acousti-Celotex can be quickly applied to ceilings and other surfaces without disturbing routine. It can be repeatedly painted without loss of efficiency.

Why not talk over your acoustics problem with your nearest Acousti-Celotex distributor? He is a member of the world's most experienced acoustical organization . . . and he *guarantees results!* No obligation, of course! A phone call or note will bring him to your desk.

Distributors of Acousti-Celotex in the West

ASBESTOS SUPPLY COMPANIES
SEATTLE • TACOMA • PORTLAND • SPOKANE • MISSOULA

JAY GREAR CORPORATION
ALBUQUERQUE • EL PASO

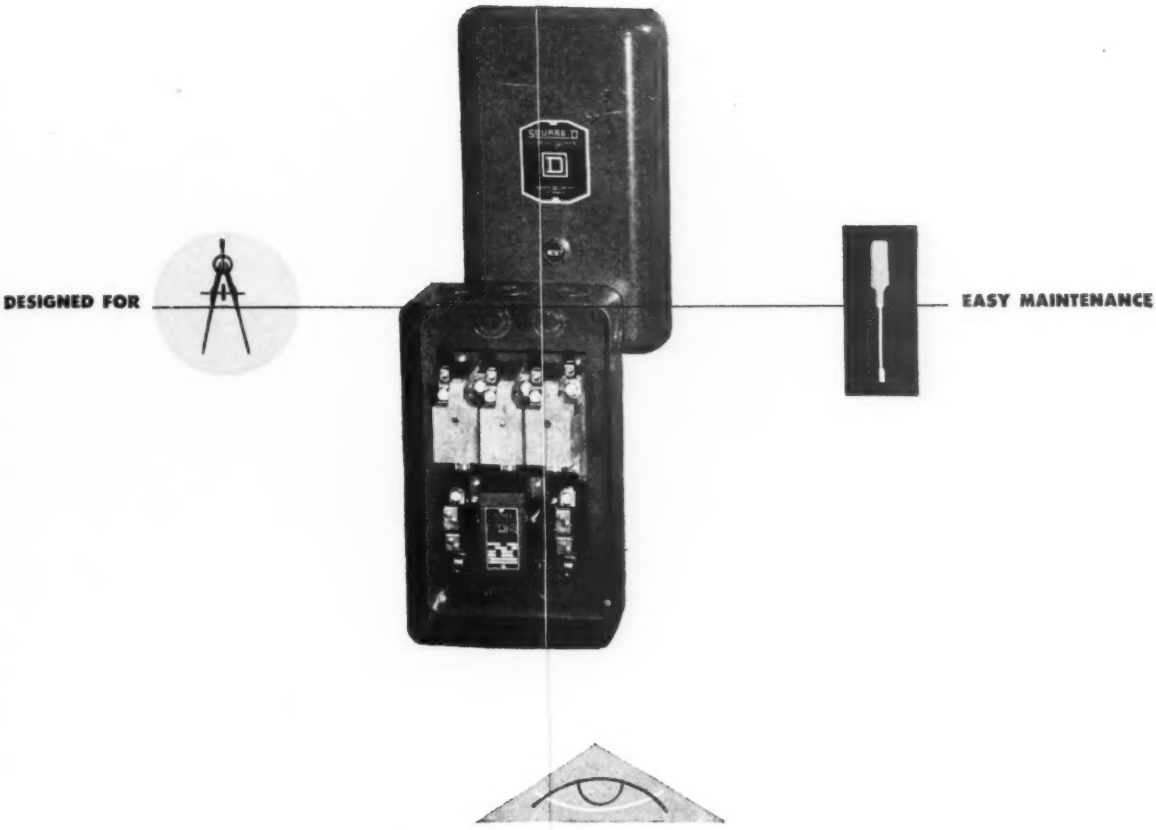
J. B. MATZ, SPECIALTY CONTRACTOR
PHOENIX

LAUREN BURT, INC.
FORMERLY ROCKY MOUNTAIN ACOUSTICAL CO.
DENVER • SALT LAKE CITY

THE HAROLD E. SHUGART CO.
LOS ANGELES

WESTERN ASBESTOS COMPANY
SAN FRANCISCO • OAKLAND • SACRAMENTO

Sound Conditioning with
ACOUSTI-CELOTEX
REG. U.S. PAT. OFF.
* *Perforated Fibre Tile* SINCE 1923



SQUARE D STARTERS...

... are designed compactly
and provide maximum wiring space.
... are built to stand up
under the most trying conditions.
... are designed to provide
maximum ease of maintenance
with the use of minimum tools.
current carrying parts are mounted
towards the front of the enclosure
and hinged movable structure
provides ease of inspection.
there is a Square D Starter
for every application ... for more information
contact a Square D field engineer.

SQUARE D COMPANY

LOS ANGELES • DETROIT • MILWAUKEE

Stauffer
CHEMICALS
SINCE 1885

A Dependable Source of Supply

It's natural to seek out the most dependable source of good quality — a source that really enjoys serving you.

Years of experience and "know how" plus the latest in production facilities — truly a dependable source of good chemicals.

Ten Producing Plants — in the West

STAUFFER CHEMICAL CO.

Chemicals for Industry and Agriculture

SAN FRANCISCO • NORTH PORTLAND, ORE • LOS ANGELES

on Our Booth
PACIFIC CHEMICAL EXPOSITION

6600 McKinley Ave.
Los Angeles

Source of service

FOR YOUR SPECIALTY STEEL NEEDS

More and more West Coast users of cold rolled strip steel are depending on this new source of service. A call, wire, or letter will bring prompt attention to your needs. Thanks to your helpful suggestions we have been able to build our inventory to meet your particular requirements. We can now provide prompt shipment from stock on low carbon grades .025" thick down to .001", in all tempers; annealed spring steel .072" down to .010", in AISI 1095 or 1075 grades; tempered spring steel as thin as .0015", and Type 302 or Type 430 Stainless .001" and heavier. Coils can be slit to your required width and cut to length. For prompt shipment call TWinoaks 3047 or 3114. And remember, we're still expanding our inventory and will welcome further suggestions regarding your regular needs.

COLD FACTS ON CMP STRIP STEEL

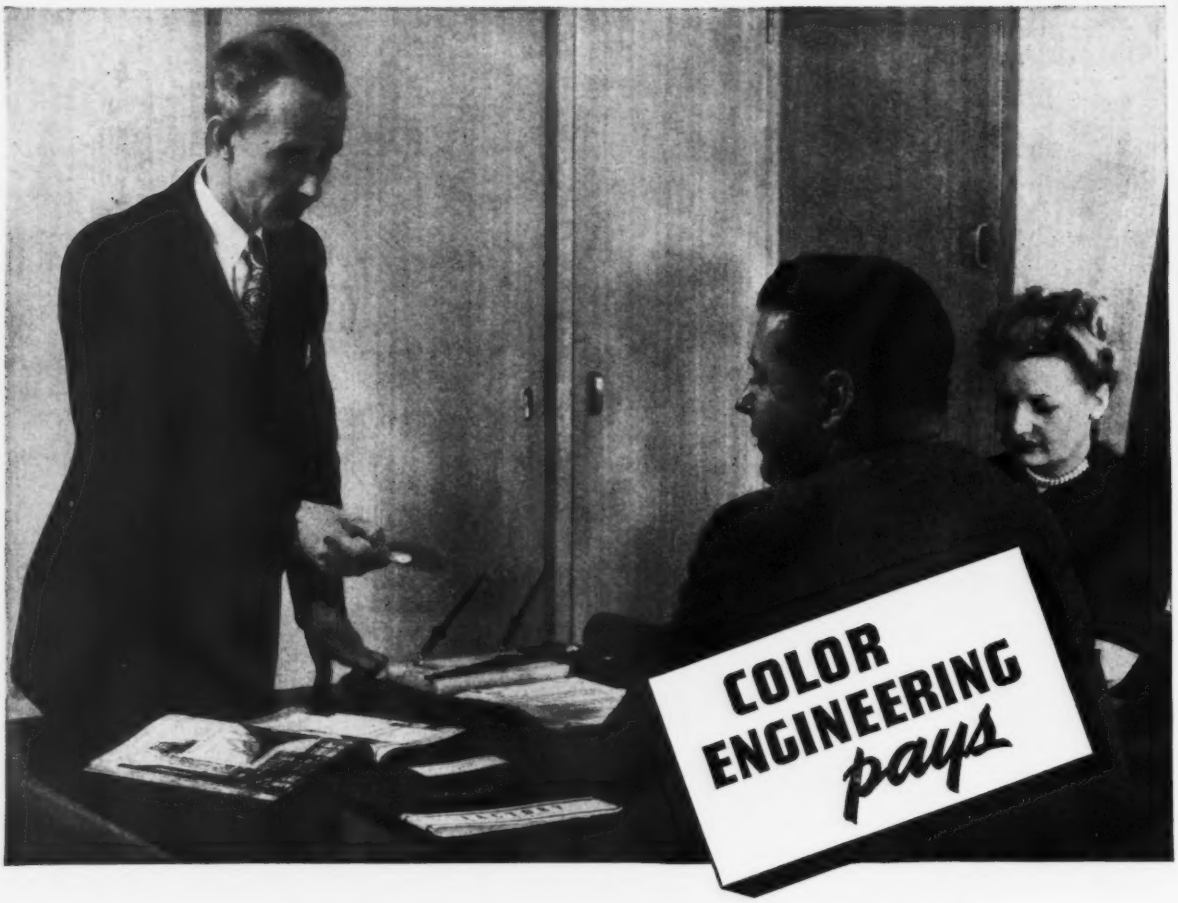
- **EXTRA LONG COILS** ... *less downtime*
- **EXTREMELY CLOSE TOLERANCES** ... *more parts per ton*
- **WIDE RANGE OF PHYSICALS AND ANALYSES** ... *tailored for your products*
- **GAUGES THIN AS .001"** ... *strength with lightness*

CMP STRIP STEEL • PRECISION COLD ROLLED • STAINLESS • ALLOY • CARBON GRADES

GIVES MAXIMUM PRODUCTION PER TON

THE COLD METAL PRODUCTS CO.
WESTERN WAREHOUSE DIVISION

6600 McKINLEY AVE. • LOS ANGELES



ONE ACCIDENT CAN COST MORE—

—In lost man hours

—In production delays

—In jittery morale that destroys efficiency and makes other employees accident prone

—than the entire cost of scientific safety through modern Color Engineering

Safety *rules* are not enough. You have to *create* safety —*practice* accident prevention!

Unmarked danger areas—eye-straining work light—dull, drab surroundings—haphazard flow of plant traffic! All these are *causes* of fatigue, apathy, carelessness, inefficiency, *accidents*.

Why run risks? Color Engineering by Fuller can help correct the dangers.

What to do? Let a trained Fuller representative survey your plant from front office to freight platform—recommend *in writing* a color system exactly fitted to your building, your equipment, your work plan. No obligation!

Color *engineer* your place. Watch morale rise, efficiency increase, production delays lessen, accident costs drop. Money in the bank! W. P. Fuller & Co. San Francisco. Branches and Dealers throughout the West.

FREE:—Charts, guides, full-color before-and-after examples—20 pages packed with paying data—in our book, "Color Engineering by Fuller." Get one!

FULLER FINISHES

CLARK CLAMP LIFT TRUCK

DEPENDABLE

POWER

EXIDE-IRONCLAD POWER AND BATTERY ELECTRIC TRUCKS

They're saving time and cutting costs on materials handling jobs like yours

More and more companies, with operating conditions that closely parallel yours, have discovered the way to faster, safer and more economical handling of materials. They have given the job of lifting, hauling and stacking to the efficient battery electric truck and equally efficient Exide-Ironclad Batteries.

The high electrical efficiency of Exide-Ironclad Batteries is due largely to the unique construction of the positive plates. Each of these plates consists of a series of slotted, hollow tubes which contain the active material. So fine are these slots that, while they permit easy access of the electrolyte, they prevent the active material from readily washing out. Not only does this add to life of plates . . . and battery . . . it also provides higher power ability and capacity, assuring dependable, day long performance with maximum safety and maximum maintenance.

Write us for a FREE copy of Exide-Ironclad Topics, which contains "Case Studies" of materials handling problems. It tells how to cut handling costs up to 50% . . . covers latest developments in handling materials from receiving to shipping.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
LOS ANGELES SAN FRANCISCO DENVER SEATTLE
Exide Batteries of Canada, Limited, Toronto

CLARK CLAMP LIFT TRUCK

A HABIT TO JOE...

"NEW IDEA" TO HIS NEPHEW

...YET BOTH WANT THE SECURITY your P.S. Plan Provides

HAVE YOU told all your new or recently hired employees about the benefits of the Payroll Savings Plan for the regular purchase of U. S. Savings Bonds? Wage earners, according to a recent nation-wide survey, want security more than anything else. They prefer security to big pay, soft jobs, authority, "success."

There is no surer way to this peace of mind than systematic savings. And what surer, safer, better means can your employees find than payroll allotments for U. S. Savings Bonds? Bonds that return $4 at maturity for every $3 they invest!

Your active support of the Payroll Savings Plan is an investment in employee contentment, in the citizenship of your community, and in the security of America's future. This is practical "employee relations" of the highest type and pays dividends of satisfaction to everyone.

Start a drive today for larger participation in the plan. Many employees may be unfamiliar with its advantages. If you want literature for distribution, contact your State Director of the Treasury Department's Savings Bonds Division.

New Savings Bonds Plan won't affect the P.S.P.

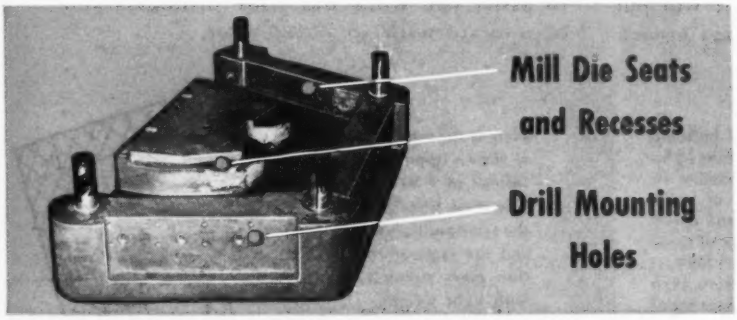
THE Treasury Department and the banks of America are making it possible for farmers, doctors, and other self-employed people to participate in "automatic" Bond buying by special arrangement with their banks. This extension of the Savings Bonds program is not a partial payment plan and is intended *only* for people who are not in a position to take advantage of the Payroll Savings Plan.

The Treasury Department acknowledges with appreciation the publication of this message by

WESTERN INDUSTRY • 503 MARKET STREET • SAN FRANCISCO

This is an official U.S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council.

DANLY Special Die Sets — *Ready for mounting the Dies on Specification*

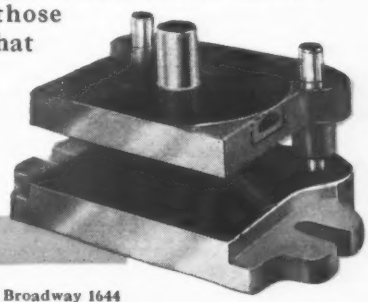


"Mill die seats and recesses; drill mounting holes; mill mounting pads." The work performed on the set shown here is an example of the machining operations that Danly can do for you while your die set is in process. In many cases this necessary machining can be done on the same setup as standard operations on the die set, thereby minimizing setup and handling time.

Additional machining may be specified on any "special" including M-K and A-S sets which can be ordered directly from the Danly Catalog.

This Danly service is especially valuable on large sets. Milling, drilling and boring operations, so easily handled here may cause difficulty in the die shop or your own tool room where equipment is not specifically suited to large work.

Investigate this time saving and cost cutting service. On your next special die set order consider Danly's service for those "extra" operations that can be handled here. Your die set will be delivered "ready for mounting the dies."



DANLY MACHINE SPECIALTIES, INC., 2100 So. 52nd Ave., Chicago 50, Ill.

Detroit 16, Michigan
1549 Temple Ave., Cherry 6666
Rochester 4, New York
16 Commercial St., Main 2554
Cleveland 14, Ohio
1550 East 33rd St., Express 0300

Philadelphia 44, Pennsylvania
18 West Chelten Ave , Victor 40011
Long Island City 1, New York
47-28 Thirty-Seventh St., Ironsides 6-8080
Dayton 2, Ohio
990 E Monument Ave., Fulton 6651

Milwaukee 2, Wisconsin
111 East Wisconsin Ave., Broadway 1644
Ducommun Metals & Supply Company
4890 So. Alameda St
Los Angeles 54 California, Kimball 0181

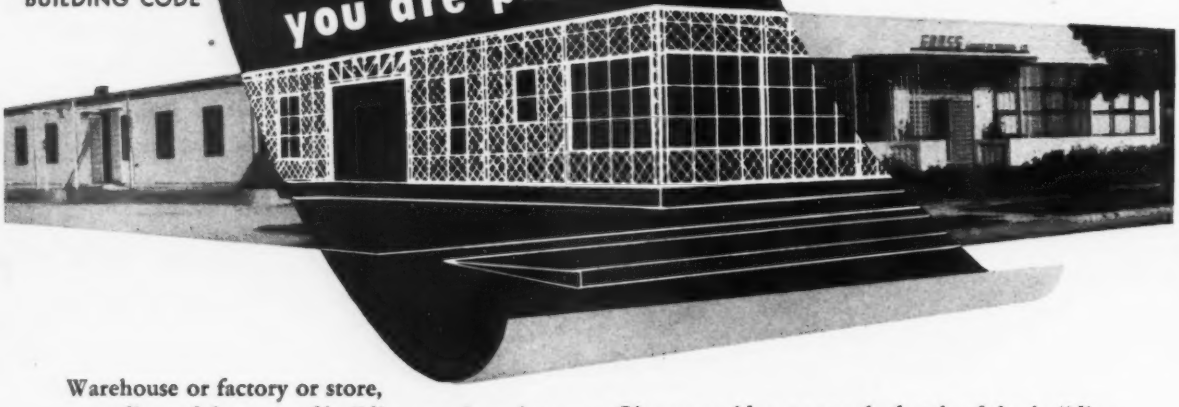
DANLY *Special* DIE SETS

MACHINED TO YOUR SPECIFICATIONS

that new building you are planning

APPROVED BY UNIFORM BUILDING CODE

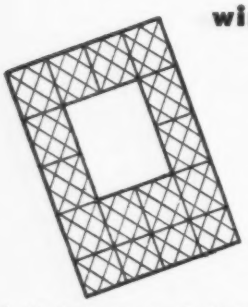
Typical Latisteel office and factory building erected in 17 days.



Warehouse or factory or store, regardless of the type of building you have been planning to build... do not let high building costs discourage you. Investigate sturdy, permanent, fire-resistant, earthquake-proof, low cost, low maintenance Latisteel construction. It will put you into your new plant 60 to 90 days sooner.

Give us an idea or rough sketch of the building you want, with major dimensions. We will submit estimates and suggestions *without obligation* to you. Our engineering department is ready to assist you work out your problems and co-operate with your architect.

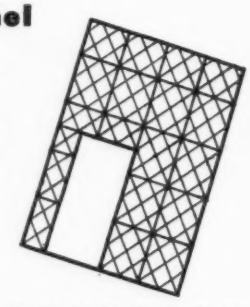
window panel



Latisteel has evolved building standards which combine lightweight steel and concrete to apply to many types of buildings to reduce costs and speed up erection time. One of these standards is illustrated here... a Latisteel panel with sash opening. These openings are of multiple design to meet your specific need... such as continuous sash for maximum light.

door panel

Here is the same Latisteel panel as shown opposite with a door instead of a window opening. The same principles govern it; the same multiple designs apply and the same sturdy construction gives strength combined with light weight.



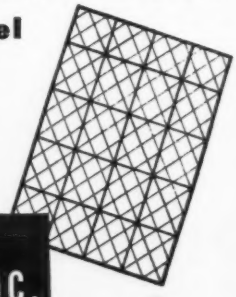
truss

Standard trusses offer clear spans up to 80 feet, on which Latisteel roof decking is laid to be covered with any specified insulation and roofing materials.

Latisteel construction is adaptable and versatile. Erection time is cut greatly, since 70% to 80% of the total labor is done in the shop. For complete details and estimates on Latisteel construction as applied to the building you want, write Dept.

plain panel

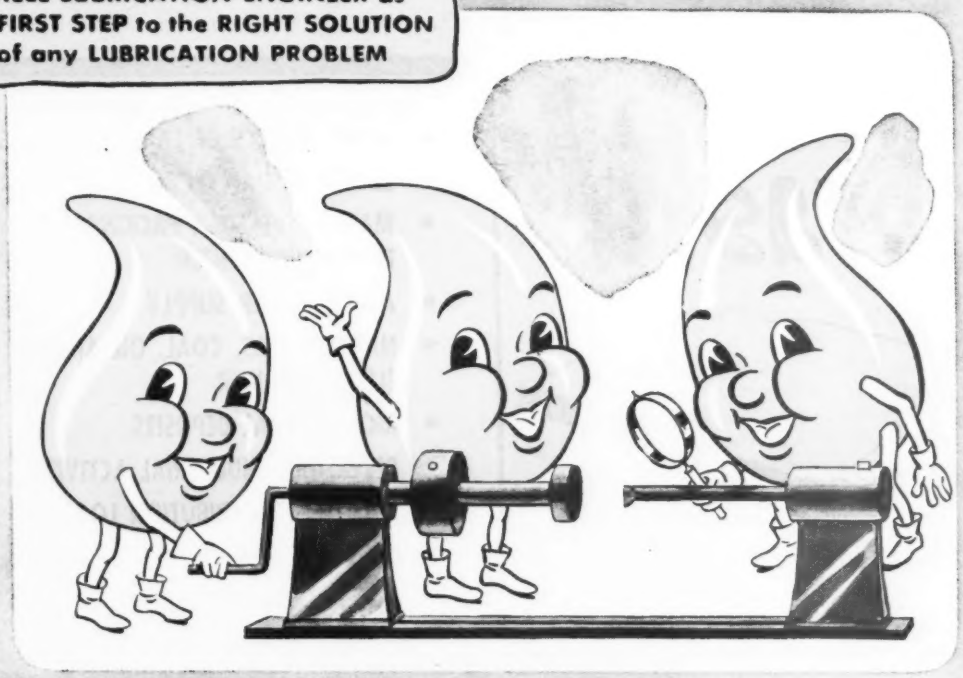
Here is the standard Latisteel panel where no opening is desired. Panels are designed in widths of 8 feet and 10 feet to give ceiling heights of from 9 feet to 24 feet.



LATISTEEL inc.

Phone SYcamore 2-4143 or write to Dept. Box I, Pasadena 8, California

Call the
SHELL LUBRICATION ENGINEER as the FIRST STEP to the RIGHT SOLUTION of any LUBRICATION PROBLEM



A SHELL CUTTING OIL SAVES A GRINDING OPERATION

PROBLEM: Boring of cast-aluminum manifold valves was a three-step job for a metal specialties company: two steps with cutting tools, followed by a finish grind to smooth the results of "tearing." Attempts to obtain a satisfactory surface with cutting tools alone were not successful.

SOLUTION: When the Shell Lubrication Engineer surveyed the problem, he recommended a change to a Shell cutting oil of low-viscosity and extreme lubricity. The cutting operations were immediately improved—so much so, in fact, that the desired surface smoothness was obtained by the second or finish cut, thereby eliminating grinding altogether.

CONCLUSION: It pays to consult the Shell Lubrication Engineer, regardless of the nature or size of your lubricating problem. Write for informative literature on Shell Metal-Working Oils. Shell Oil Company, Incorporated, 50 W. 50th St., New York 20, N. Y., or 100 Bush St., San Francisco 6, Calif.

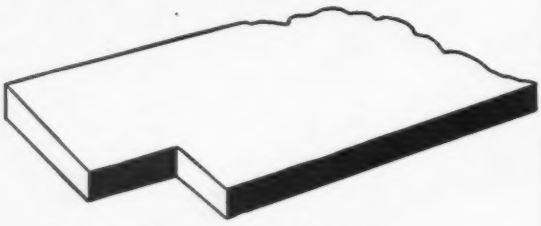
SHELL METAL-WORKING OILS
For every metal . . . for every operation

SHELL ®

UNION PACIFIC

TREASURE MAP OF INDUSTRY

Nebraska*



* *One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*

- LARGE SOURCE OF FARM PRODUCTS
- LEADER IN DAIRY PRODUCTS
- MAJOR LIVESTOCK PACKING AND PROCESSING CENTER
- AMPLE WATER SUPPLY
- NATURAL GAS, COAL, OIL AND ELECTRIC POWER
- RICH MINERAL DEPOSITS
- DIVERSIFIED INDUSTRIAL ACTIVITY
- STRATEGIC DISTRIBUTION LOCATION
- EXCELLENT RAIL TRANSPORTATION
- SKILLED, FAIR-MINDED LABOR
- NO SALES OR INCOME TAX

Industries engaged in the packing or processing of farm products find Nebraska a rich source of raw materials. Corn, grains, sugar beets, potatoes and other vegetables are grown in abundance.

Omaha is a leading meat packing and poultry processing center. It frequently leads the nation in livestock receipts, is located in the world's largest butter producing area, and houses the nation's second largest industrial alcohol plant.

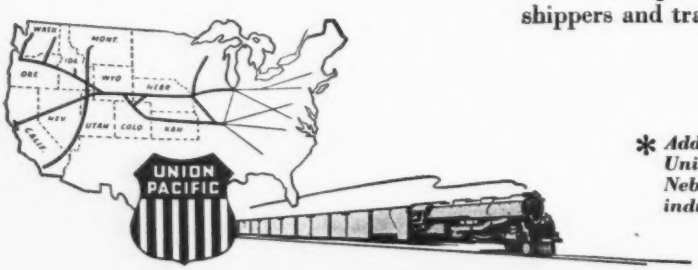
In addition to agricultural activity, there is diversified industrial manufacturing such as farm machinery, air conditioning equipment, fabricated steel, brick and tile.

Nebraska has large mineral deposits; gypsum, salt, potash, sand, gravel, stone, etc. Natural gas, petroleum and coal are readily available.

Of particular interest to industry is Nebraska's "pay-as-you-go" policy; no state sales, income or luxury taxes. It is a good place to work and live.

* * *

In Omaha are the headquarters of the Union Pacific Railroad which provides efficient, dependable transportation for shippers and travelers.



* *Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebr., for information regarding industrial sites.*

UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

In Our Mail Box

Reviewing the Fuel Supply Situation

Editor, Western Industry:

I want to compliment you on your clear cut article entitled "At the Crossroads on Fuel Supply."

I think that this is an excellent review and covers the subject very well.

ROY A. WEHE
Assistant Director
Public Utilities Commission
State of California
San Francisco 2, Calif.

Editor, Western Industry:

I think the fuel supply article in your July issue pretty accurately describes the situation but the general tone of it is, I believe, unduly pessimistic. There is no possible prospect of a continuing peace-time fuel famine on the Pacific Coast. Raw materials for liquid fuels are available in adequate supply and the oil industry has the technical and financial ability to meet any demands put upon it.

R. L. MINCKLER
General Petroleum Corporation
Los Angeles 12, Calif.

Editor, Western Industry:

"At the Crossroads on Fuel Supply" certainly was an intelligent and comprehensive article.

ALVIN E. HEWITT
Executive Vice-President
California Manufacturers Ass'n
Los Angeles 15, Calif.

Editor, Western Industry:

So far as our risibilities are concerned, we wouldn't care if your very fine publication stated we use mesquite wood for power generation heat, but in the interest of accuracy you should know that the statement on page 36, bottom of column 1, of the July issue is not quite true. Fact is, the Central Arizona Light and Power Company uses natural gas for heating steam plant boilers when available, converting to oil when gas is not available. (To infer we are not having difficulty in obtaining oil would also be inaccurate!) We are not equipped to use coal.

MILTON G. SAUNDERS
Vice-President in Charge of Sales
Central Arizona Light & Power Co.
Phoenix, Arizona.

Editor, Western Industry:

The article in the July issue of *Western Industry* entitled "At the Cross-Roads in Fuel Supply" is extremely interesting, and I found it accurate as far as I was able to determine. You have treated the subject matter very well.

V. F. PARRY
Supervising Engineer
Subbituminous Coal & Lignite Section
U. S. Department of the Interior
Golden, Colorado.

Editor, Western Industry:

You have covered the supply situation quite satisfactorily and I have nothing to add at this time. I might mention, however, that the fuel

EDITORIAL COMMENT

Facts on Foreign Trade

FOR delightful vagueness, read: (1) an argument in favor of foreign trade, urging the necessity of increasing imports so that we can continue to export; (2) an argument opposing imports, because they will destroy American industry.

In theory, each of these contradictory arguments is unassailable. You have to import so that the purchasers of your exports will be able to pay for them; but on the other hand, if you import you ruin a domestic industry and throw people out of work.

Again, if you allow foreign goods to compete with domestic products, you keep prices down to a reasonable level and prevent a minority group taxing everybody else to keep themselves in business (like the historic example of the tariff on a certain type of stone, the sole domestic producer being a single quarry in Vermont). Contrariwise, if you permit destructive foreign competition in the home market, pretty soon you won't have any domestic industry left (like the Japanese and Czecho-Slovakian Christmas tree ornaments that dominated the American prewar market, and the Japanese light bulbs which began to encroach alarmingly on the domestic bulb). Either way, it's a sad story, mates.

It seems as though every public statement pro and con foreign trade is made by a person who begins with a conclusion and adds suitable supporting facts.

Western Industry would like to see an impartial fact-finding analysis instituted for the wool situation, for example, to ascertain whether domestic wool production has increased under tariff protection; whether reduction of tariff would smother the domestic article under a flood of imported fleece, or on the other hand increase the consumption of both kinds of wool; whether the total contribution to the national economy offsets the penalty consumers must pay on account of the tariff; whether wool growers could find a substitute occupation; and so on until the whole picture had been developed. It would not hurt to have almonds and olives studied on the same basis.

It may be that reciprocal trade agreement hearings bring out all these facts, but they are certainly not well publicized.

The South Organizes

NEWS that the New England Council now has a counterpart in the South, the Southern Association of Science and Industry (conveniently abbreviated to "SASI") ought to be of interest to Westerners hoping for greater regional unity in the West.

An Associated Press dispatch describes SASI as an organization with headquarters in Richmond, Virginia, which is seeking to mobilize the best brains in the South for an all-out attack on southern problems.

"Already the roster of the general staff reads like a 'Who's Who' of southern leaders in education, industry and agriculture . . . and the recruiting has just begun," says the A. P. "It is patterned after the New England Council and financed by contributions from individuals, industrial corporations and associations."

Its chief initial objective seems to be an inventory of southern resources. Next are improving education in the South so that its boys and girls can get adequate training in research and science in southern institutions, and creating an appreciation by southerners of the opportunities and resources offered by the South.

STANDARD ENGINEERS NOTEBOOK

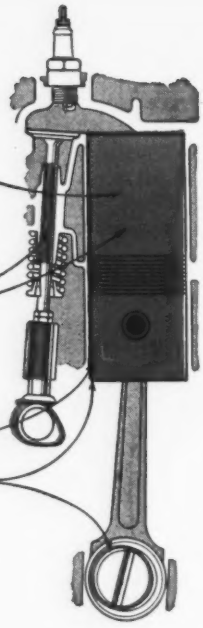
CALOL RPM

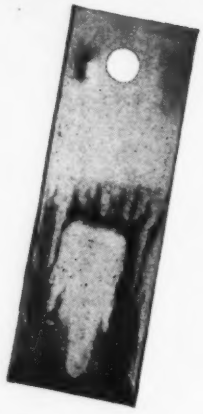
① Adhering agent in RPM Compounded Motor Oil keeps oil film on all parts after engine stops, even on cylinder walls.

② Rustproofing compounds prevent moisture that condenses on cooling parts from contacting metal.

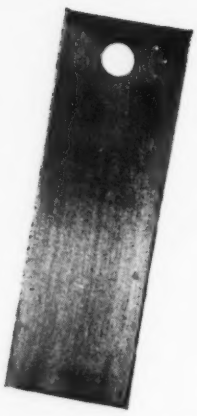
③ No rust is formed to scrape off when engine starts, and cause excessive wear.

④ Constant lubricant film provides adequate and instant lubrication when engine starts.





This actual photograph shows how one HIGH-QUALITY MOTOR OIL "peeled" off almost all of this test strip of steel when it was placed in corrosive-moisture conditions similar to those in a cooling engine. The oil concentrated at one spot and the unprotected surface quickly rusted.



RPM COMPOUNDED MOTOR OIL kept this strip bright and shiny completely sealed against rusting, when it was exposed to the same conditions. "RPM" compounds keep a constant rust-proofing lubricant film on engine parts at all times, whether they are idle or moving.

How RPM Motor Oil Rust-Proofs As It Lubricates

Rusting, caused by corrosive moisture, is the greatest source of wear in automotive engines (85%, according to some engineers). It can be controlled by using RPM Compounded Motor Oil.

Additional compounding for "RPM," perfected by Standard of California scientists, provides a rust-proofing lubricant film on internal engine surfaces. The heaviest moisture condensation in idle or cold-running engines will not cut through it.

Other compounds in RPM Motor Oil give it adherent qualities so the film stays on parts at all times. They also loosen and remove gum and lacquer, lubricate hot spots, resist sludge formation, bearing corrosion and stop foaming.

Trademark "RPM" Reg. U. S. Pat. Off.

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help — make your maintenance job easier. Call your local Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

FOR EVERY NEED A STANDARD OF CALIFORNIA JOB-PROVED PRODUCT

oil prices increased on July 1st which will obviously change your table on page 37. This increase in fuel prices will also affect the interruptible gas schedules of the Northern and Southern California Gas Companies.

R. M. BAUER
Gas Supply Supervisor
Southern Calif. Gas Co.
Los Angeles, Calif.

Stop the "Have Not" Theory

Editor, Western Industry:

I saw the editorial (Let the Facts Speak) when it appeared several months ago and I feel that it expresses the plight of the mining industry as a whole, today.

Ourselves, producers of tungsten, are greatly concerned over present day attempts to reduce tariffs, buy all stockpile ore abroad, and leave the domestic producer holding the sack.

Several federal governmental departments hold to the "have not" theory which has not helped any. This theory holds that our ore reserves are exhausted in many cases and this is not true. New ore reserves are only developed through further mining and this must be continued. Other departments want us to hold known ore reserves in the ground and use them only in time of emergencies. This, you know, cannot be done as you cannot shut down a mine and reopen it at will, as it is a long and expensive operation. These are just a few of our present-day problems.

CHARLES H. SEGERSTROM, JR.
President
Nevada-Massachusetts Company
Sonora, California.

Editor, Western Industry:

Thank you for your editorial relating to the development of mining reserves. We greatly appreciate your cooperation.

We have for a long while been attempting a campaign of education which you suggest but it is very difficult to reach the public, especially when big names in Washington are preaching the "have not" propaganda and the importance of the names gets the space in the newspapers and magazines of general distribution.

The fact that they have ulterior motives does not seem to make much difference.

CHARLES F. WILLIS
State Secretary
Arizona Small Mine Operators Assn.
Phoenix, Arizona.

Editor, Western Industry:

With regard to the editorial commenting on Mrs. Dolphin's mine (*Western Industry*, April), she is performing a public service in making it possible for visitors to see the mine, and I have advocated the same sort of activity in the coal industry. In fact, I recently prepared a brief statement that I called "Hospitality and Education," and am enclosing a copy of it in the belief that it may be of interest to you.

M. D. COOPER
Manager of Vocational Training
National Coal Association
Washington 5, D. C.

Mistaken Identity

Editor, Western Industry:

Unfortunately, the article in *Western Industry* ("Tackling the New Labor Problem," August) has made an error in identity. I am not the "William K. Hopkins" who was formerly regional director of the War Manpower Commission. Your mistake was a natural one and has been made before. During the war, I was

Conveyco Engineers Put EMPHASIS on SYSTEM!

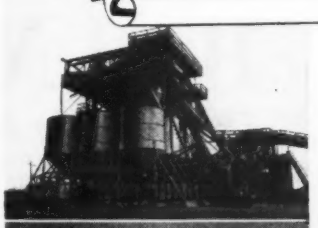
CONVEYCO

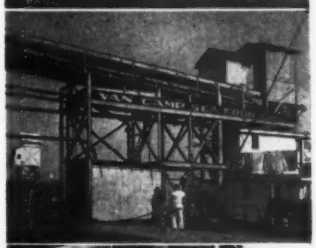
CONSULT CONVEYCO ABOUT YOUR HANDLING SYSTEM

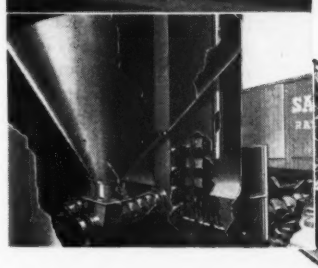
Make your plant serve you better! Increase efficiency now to meet growing competition. Time and money saved in material handling often means the difference between profit and loss. Conveyco systems synchronize production and handling methods to meet individual plant requirements. Your present conveying equipment can often be coordinated to gain greater speed and production.

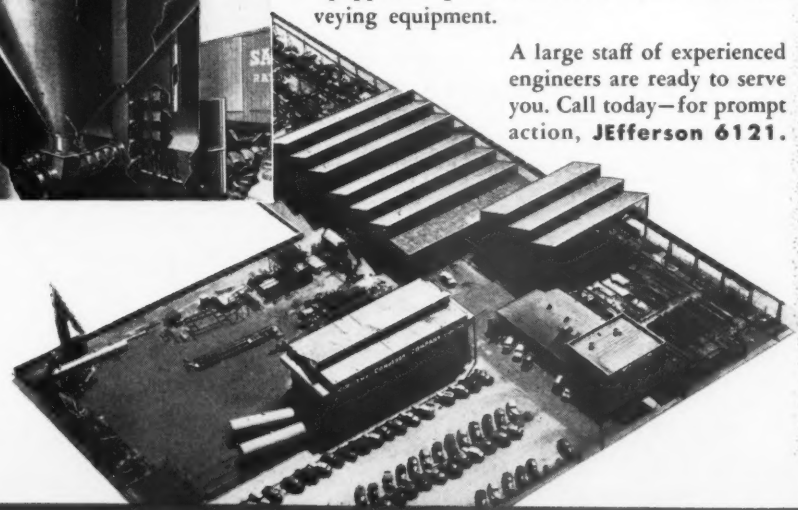
A leader in the engineering and construction of automatic-movement and processing systems for 28 years, Conveyco has planned and equipped plants for handling steel, glass, cement, stone, food, fish, oil, grain, and many other products. Whether you need a complete new system or a simple repair part, the Conveyor Company is equipped to provide the best work-tested conveying equipment.

A large staff of experienced engineers are ready to serve you. Call today—for prompt action, **JEfferson 6121.**









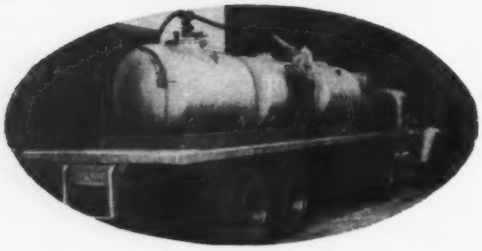
THE CONVEYOR CO.
ENGINEERS • MANUFACTURERS

3260 EAST SLAUSON AVENUE
LOS ANGELES 11, CALIFORNIA

CONVEYCO
EQUIPMENT FOR
•VEGETABLE PACKING
•CONSTRUCTION
•CONVEYING
•OIL FIELD

FRUEHAUFS For Purex To Haul New Product

Trailers solve Intricate Delivery Problem



Purex Corp., Ltd., of South Gate, California, is another western industry to adopt the Trailer method for distributing its wares. When planning dealer delivery service for "Trend"—a soapless detergent—Fruehaufs were chosen for the entire fleet. It is operated throughout the State of California.

"By use of Fruehauf Trailers, distribution costs will be reduced an estimated 30 to 40 per cent," says Ralph S. Schmitt, General Traffic Manager. "Faster delivery service improves customer relations and the Aerovan bodies as mobile billboards save on advertising costs."

Because of the vast area covered and the need for promptness, distribution problems are intricate but the Fruehaufs solve them all. For heavy loads of "Trend" and "Purex," three 28′ Aerovans with gravity suspension axles were chosen; for lighter loads to be delivered in tight spots, there are three 21′ Aerovans. Tank and stake-and-rack units deliver to commercial and industrial users.

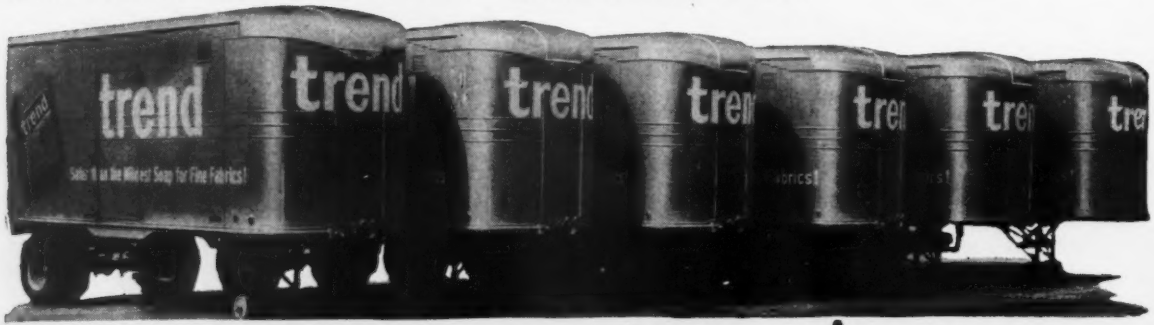
Your business probably can profit by use of the Fruehauf Trailer method. It won't cost you anything to find out. Call or write the nearest Fruehauf Branch.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant — Los Angeles

Sales and Service Branches—LOS ANGELES • SAN FRANCISCO PORTLAND • SEATTLE • EL PASO • PHOENIX • SAN DIEGO FRESNO • SPOKANE • BILLINGS • SALT LAKE CITY • DENVER



FRUEHAUF TRAILERS — FRUEHAUF NATION-WIDE SERVICE — "ENGINEERED TRANSPORTATION"

with the War Labor Board in San Francisco so that "William K." and I had offices in the same building at 1355 Market Street. Accordingly, we frequently got each other's mail and telephone calls. I don't know where he is now, but the last I heard he had returned to Los Angeles.

In the interest of correcting misunderstandings, I would suggest that you run a correction in the next issue of your magazine.

WILLIAM S. HOPKINS
Director
Institute of Labor Economics
University of Washington
Seattle 5, Washington

Home to Roost

Editor, Western Industry:

Your correspondent neglected to tell the whole story (Denver Regional Review, July). Here is the rest of it. (Mr. Harris refers to his own letter to the Denver Post as follows):

"During the last campaign Ed Johnson and Lee Knous severely criticized Governor Vivian for his alleged failure to build roads during his wartime administration.

"He was a 'do nothing' governor. They knew full well, as everyone else did, why no highways were constructed during the emergency—because there was a shortage of labor and materials, and because the government wouldn't allow it.

"But they failed to tell the people that.

"Now, OFFICIALLY, they have learned why Vivian didn't build roads. Governor Knous has announced recently the 1947 road program in Colorado would be 'deferred' because of the 'shortage of labor and materials.'

"Is it possible, because of this that Governor Knous is now in Vivian's class—a 'do nothing' governor?

"Chickens DO come home to roost."

Incidentally, Governor Vivian was not a candidate for re-election, after having served two terms. Had he been, he would have been elected a third time.

AMOS HARRIS
Denver, Colorado.

Wants to Follow Up

Editor, Western Industry:

The editorial in the August issue of *Western Industry* entitled "Use the Job Break-Down Method" indicated that the NAM and the U. S. Chamber of Commerce have not analyzed sufficiently the possibilities of reducing taxes.

I respectfully refer you to a report entitled "A Brief in Support of a Program for Federal Tax Revision" as submitted to the House Committee on Ways and Means about July 10th. Another committee from NAM has been working on reduction of government spending and elimination of government corporations.

With your permission, I would like to take this matter up with the NAM to get more specific information on the work being done by them and the U. S. Chamber of Commerce with the hopes you may be convinced that more favorable comments can be made in your editorials.

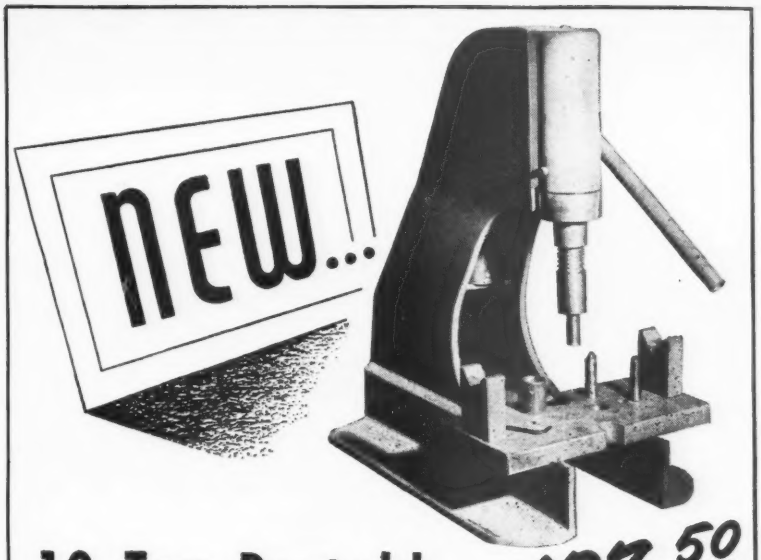
A. M. MEARS
Oregon Steel Mills
Portland 10, Oregon.

Appreciated

Editor, Western Industry:

. . . on the continuing fight with regard to the dam building program in the Columbia River Basin (*Western Industry*, August) your coverage on this subject is very much appreciated by the fisheries' interests.

T. F. SANDOZ
Columbia River Packers Assn., Inc.
Astoria, Oregon.



10-Ton Portable ARBOR PRESS $127.50 F. O. B. FACTORY

For the first time, a 10-ton portable arbor press, and at a low price every shop can afford.

It's a RUGER

Can be used anyplace in the shop, set up on table or workbench convenient to the job. Easily picked up and moved around by one man as press weighs only 101 lbs.

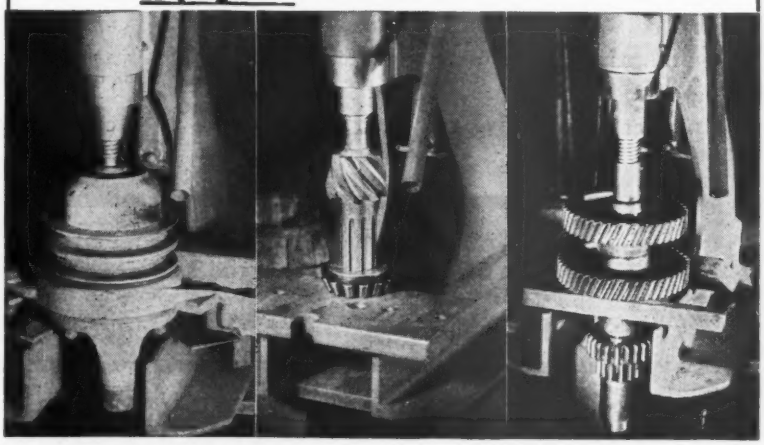
Simple and practical . . . hydraulic principle eliminates all mechanical complications. Only two controls, pump lever and release valve. Hydraulic ram stroke, 6⅝", with an additional 6" up-and-down mechanical adjustment, gives ample working range. Safety release prevents overload.

Price includes table, V-blocks and all attachments shown in illustration.

Mail your order to either office listed below. Shipment will be made through our nearest distributor. Or write for free photo bulletin and complete specifications.

RUGER *Equipment Co., Inc.*

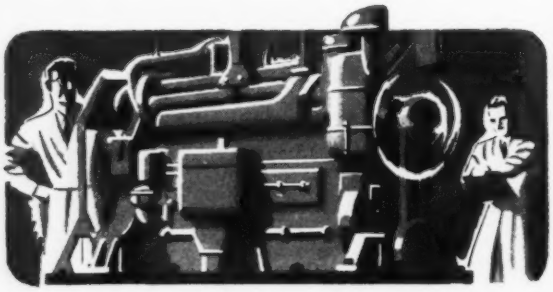
408 Leader Bldg. Cleveland 14, Ohio
P.O. Box 3821 Portland 8, Ore.



T5X

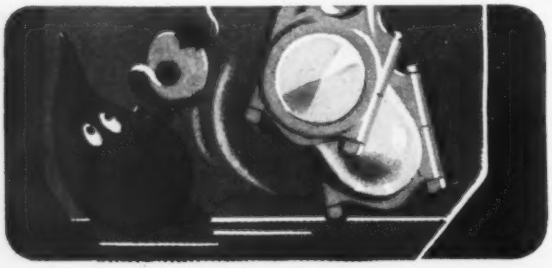
THE NEW PURPLE OIL

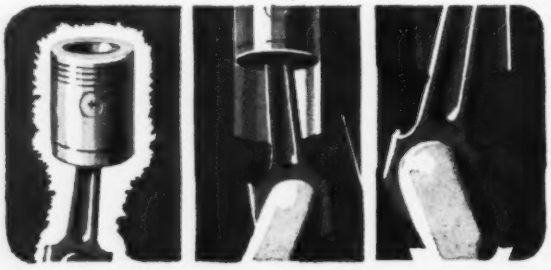
Better Protection for ANY Internal Combustion Engine!



1. T5X—the sensational new purple oil—gives maximum protection and performance in *any* kind of internal combustion engine in *any* industrial operation! T5X is a fully compounded, detergent-type oil. Its distinctive color comes from an exclusive ingredient which helps give the oil its remarkable stability.

2. In the "L-4" Coordinating Research Council tests for gasoline engine lubricants, T5X lasted *double* the length of time required. It easily passed the grueling 500-hour continuous-run Diesel engine test—considered the most exacting test of all for Diesel lubricants!





3. T5X keeps engines clean! It contains a detergent compound that holds unburned fuel residues and other impurities suspended harmlessly in the oil, preventing sludge formation. Thus oil lines, pistons and ring grooves stay clean longer!

4. T5X reduces wear! It contains an inhibitor which minimizes oil oxidation, gives high stability against heat. Another additive protects against corrosion and rust. A third ingredient retards foaming even under the most adverse conditions.

This sensational *purple* oil is now available for immediate delivery. For additional information, phone your local Union Oil Representative, or wire Sales Dept., Union Oil Co., Los Angeles 14, California.

T5X—*"as distinctive in quality as it is in color"*

UNION OIL COMPANY
OF CALIFORNIA

THE WESTERN OUTLOOK..News...Statistics... 1

Third downward month in manufacturing employment; situation after food processing season obscure . . . Third quarter carloadings estimated above last year . . . Northwest cities may get natural gas . . . Government holds 350,000 tons of iron and steel scrap in northern California . . . Large tuna and salmon catches

Employment Picture

By David E. Christian

THE continuing rise in seasonal employment continues to conceal the more fundamental pattern and to create optimism which may not be justified by a more sober appraisal. In this respect, the situations in the West and in the entire nation are similar. The headlines stress the big increases in employment; the more significant fact is that manufacturing employment—a much better barometer—is declining. While it is still small, this drop in factory workforce has now continued for three months and has all the signs of reflecting a new trend—downward.

The eventual inevitability of this trend is not news to the readers of this column; it has been stressed at numerous times in the last six months. In brief, domestic production has been running significantly ahead of domestic consumption on a physical volume basis. That has been possible only because of the huge export boom and the "pipelining" and inventory accumulation necessary after the war. We have now reached the point where production for inventory build-up is almost finished and, at the same time, the export markets show unmistakable signs of weakness. The only possible result is a decline in total production—a decline which has actually been underway since March. Hence the drop in the key manufacturing employment sector.

Undoubtedly, the decline will continue subject to such interruptions as could result from isolated events such as the redemption of terminal leave bonds. Current consumption, already inadequate to absorb our total production, has been buoyed up by rapid expansion of consumer credit, **each dollar of which further limits future purchases out of income.** While credit expansion could support consumption for some time yet, an ultimate reversal or stabilization is inevitable—thus removing an important prop from consumption spending. This is a factor which can help to convert what many expect to be a minor readjustment into the vicious cycle of consumption decline, inventory liquidation, production decline, employment drop and further reduced consumption.

The current employment situation in the West bears many of the characteristics of the national picture. Although unemployment remains higher here, total employment continues upward as the result of agriculture and other seasonal industry expansions. It is now at an all-time high for this season. As in the nation as a whole, however, non-seasonal manufacturing employment is on the skids.

California, where the trend is most noticeable, reported a drop in every durable goods industry except lumber and the stone, clay and glass group. Its unemployment is now as great as last year at this time and the state experts expect the number of jobless this fall to be noticeably above the comparable 1946 level. Most of the other states report much less evidence of a pessimistic trend, due largely to their smaller inmigration and much greater dependence upon the still booming agriculture, lumber and mining industries.

The current outlook from area to area is very mixed, depending, of course, upon the nature of the dominant industries. Areas dependent upon the extractive industries named above are typically showing fewer signs of a trend reversal. Areas which depend upon citrus fruits, apricots, Army, Navy and other government establishments, aluminum, machinery, apparel, ship repair, and the production of aircraft, hardware and other builders supplies are likely to show some signs of weakness.

While unemployment is not considered a problem in most areas, there are unmistakable signs that the increasing difficulty in obtaining good jobs is tending to stabilize the work force. Turnover is reported at its low point since the depression at many food plants and packing sheds, while southern railroad centers report domestic labor increasingly interested in accepting railway track labor jobs.

(Despite the increasingly adequate supply of local labor for agricultural and other uses, however, some 13,000 Mexican nationals are still working under contract in California's agriculture.)

The trends described above will cause no serious concern in the Western states during the early fall months. The outlook for the period after the seasonal agricultural and food processing peak in October is more obscure. In the absence of an unusual expansion in government spending (at home or abroad) the increasing probability is that mid-winter will see substantially increased unemployment and, in the industrial centers, many of the signs

(Continued on page 25)

MANUFACTURING EMPLOYMENT

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
January 1947...	12,800	16,600	15,900	17,900	5,200	5,800	47,600	56,000	8,400	10,000	10,500	13,700	15,200	22,690	2,800	3,500	118,400	146,190
February	12,900	16,400	15,400	17,800	5,200	5,800	43,300	53,500	8,700	9,900	10,800	13,400	17,900	22,380	2,800	3,500	120,500	142,880
March	13,500	16,300	15,600	18,300	5,300	5,800	48,400	53,300	9,000	10,000	10,800	13,300	18,100	23,050	3,300	3,500	124,000	143,550
April	14,000	16,600	17,300	.....	5,500	....	47,800	.....	8,600	.....	11,200	13,600	17,900	23,510	2,900	3,700	.....	.....
May	15,400	17,100	17,400	.....	5,400	....	47,800	.....	8,700	.....	11,100	13,100	18,300	24,110	3,400	....	.....	.....
June	.....	.....	.....	.....	....	....	.....	.....	....	.....	11,100	13,200	.....	.....	....	....	.....	.....

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1946	1947	1946	1947	1946	1947	1946	1947
January	168,200	162,200	108,000	116,100	622,600	696,900	898,800	975,200
February	162,600	162,600	106,000	115,200	602,500	693,700	871,100	971,500
March	155,400	159,700	106,900	114,400	611,400	691,600	873,700	965,700
April	161,000	160,900	107,000	.....	651,400	698,600	861,000	.....
May	163,300	164,900	106,000	.....	655,300	691,600	858,000	.....
June	.....	.....	.....	.....	665,200	688,200	.....	.....

INSURED UNEMPLOYMENT

(Under all programs: figures in thousands. From Social Security Board)

Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
February 8	8.5	10.3	7.5	7.5	2.5	7.2	9.3	2.0	55.8	262.9	32.6	58.7	354.2
March 8	8.8	11.2	7.1	8.4	2.6	7.4	7.8	2.2	55.5	264.3	28.2	57.2	349.7
April 5	7.5	8.5	4.8	6.3	2.3	6.2	5.3	1.6	42.5	268.5	20.8	40.8	330.1
May 3	6.9	7.1	3.1	3.5	2.0	4.4	3.7	.9	31.6	251.9	16.3	33.9	302.1
May 31	5.3	5.3	2.2	2.2	1.7	3.5	3.0	.6	23.8	217.9	11.6	25.9	255.4
June 6	5.2	5.4	2.1	2.1	1.6	3.7	2.7	.6	23.4	226.0	11.5	25.7	263.2

Is that your prestige FALLING?

YOU can't always prevent accidents. But you can reduce the chances for damage to your products in transit—resulting in customer dissatisfaction and loss of good will . . . by providing the protection that SIGNODE steel strapping gives shipping containers and their contents so easily and economically.

Firms in more than 700 industries now use SIGNODE steel strapping to protect their products and good will. They use it to fasten products in shipping containers . . . reinforce shipping packs . . . band multiple units on pallets and skids for more economical handling and tiering . . . and for greater security and control of shipments inside carriers.

Get the facts about the SIGNODE system of PLANNED PROTECTION for cartons, cases and crates; boxes, bundles and bales; on pallets and skids; in freight cars, ships' holds and aboard air cargo carriers. A wire or letter will bring a SIGNODE representative to your plant at once. No obligation to you.

SIGNODE STEEL STRAPPING COMPANY

2615 N. Western Avenue, Chicago 47, Ill.

Branch Offices in 40 principal cities . . . consult your classified directory.

safe . . . economical protection — SIGNODE — for every type of shipment

HERE'S AN INVESTMENT *That Pays Off* TWELVE TIMES A YEAR!

Regardless of what you think of the financial policies in Washington, there is one place your dollars are worth more than 100 cents—that's when you put four of them into a subscription to **WESTERN INDUSTRY.**

More copies of Western Industry are read by Western Industrialists, from top management down through the men in the shops, than any other magazine in the field. There must be a reason for it!

Order Your Copy Today!

One Year—$4.00 Three Years—$10.00

WESTERN INDUSTRY
503 Market Street San Francisco 5

To insure future profits for your Company you must keep posted on market developments today.

WESTERN INDUSTRY
. . . a King Publication . . .
also publishers of
WESTERN CONSTRUCTION NEWS
503 Market St., San Francisco, Calif.

WESTERN INDUSTRY
503 Market St., San Francisco

Enclosed please find my check for $..... to cover subscription to WESTERN INDUSTRY for period shown below.

St.....

Position..... City..... State.....

Name..... Company.....

☐ 1 Year ☐ 2 Years ☐ 3 Years

EMPLOYMENT *(Cont'd from page 23)*

of a business dip. It should not be assumed that the dip will necessarily stop after the 10 or 15 per cent adjustment often mentioned.

Commerce-Banking

Forecast of freight cars required in Pacific Coast Transportation Advisory Board territory for the third quarter of 1947 exceeds by over 36,000 cars the number actually loaded in any quarter during the last seven years. Increase over the third quarter of 1946 is nearly 70,000 cars, or about 12 per cent. In the Pacific Northwest the third quarter estimated increase over last year is 13.2 per cent, while for the Central Western district (Colorado, Utah, Wyoming, southern Idaho, part of eastern Oregon and Nebraska) it is 12.2 per cent.

Largest individual increases for the Pacific Coast district are indicated for gravel, rock and sand, up 30,000 cars; lumber and forest products, 10,000 cars; citrus fruits, 8,300 cars; petroleum products, 7,900 cars. Decreases small. In the Pacific Northwest lumber and forest products lead with increase of 8,174 cars; gravel, sand and stone next with 2,699; grain third with 2,071 cars and fourth flour, mill and other mill products, 1,106 cars. Petroleum and petroleum products show the biggest jump in Central West territory, up 3,826 cars; next fertilizer, up 2,688 cars; then iron and steel, 2,308 cars.

Pacific Northwest carloadings were 608,102 for the first half of 1947, as against 522,276 in 1946. This is the highest figure since 1944. Increase mostly accounted for by lumber and other forest products.

Electrical equipment shows the greatest gain in wholesalers sales on the Pacific Coast, 109 per cent up from the corresponding month of last year. Machinery and general hardware also substantially up. Grocery sales, however, have been declining. In the intermountain area, grocery sales have increased, and lumber and industrial supplies show a greater percentage rise than on the Coast.

Bank loans jumped sharply upward in July.

Power and Fuels

Electric energy consumption figures for May show better than 20 per cent increase over the corresponding month in 1946, partly accounted for by the Pacific Northwest aluminum industry. Although there is a serious shortage of hydro power, due to lack of rainfall, it is not considered a critical situation except where utility companies are unable to fill fuel oil requirements for their steam plants. Additional installed hydro facilities would apparently take care of the situation to a large extent.

Steam plants are reported to have burned about 7,500,000 barrels of fuel oil in the first half of 1946, twice the consumption of a year ago. In California the steam plants burned about 12.5 billion cubic feet of natural gas, as against 7.8 billion in the 1946 period. Much of the additional dependence on steam in California is due to a five per cent increase in power load in the last five months which had to be met by generating steam, since water conditions prevented additional use of hydro power.

Coal production in Utah is back to normal after a period of starts and stops. The mines are reasonably well staffed and operators expect the new wage scale to keep them that way. High domestic and export demand has leveled out the prewar summer depression in the industry.

Seattle lighting department has more than doubled the rate on electric power for home heating. Domestic rates have been 0.9 cents per kilowatt hour for all consumption over 1,200 kwh.; now they are 1.8 cents per kwh. for all energy over 1,200 kwh. used for space heating. Most Northwest utilities both publicly and privately owned have been actively discouraging the use of electric energy for home heating for the past year.

Two organizations are reported to be studying the possibility of supplying Vancouver, B. C., Seattle, and Portland with natural gas from the Canadian fields in southern Alberta near Lethbridge. Northwest Natural Gas and the El Paso Natural Gas Co. have announced tentative plans for building a 900-mile pipe line from Lethbridge to Vancouver. One year would be required to build the line and another to add the southern extension through Washington.

Three oil drilling operations are underway in Western Washington, and one other company has a geologist in the field. Standard is drilling near Everett, Union has just begun drilling north of Aberdeen, and five Texas companies are associated in a drilling operation

(Continued on page 27)

WHOLESALERS' SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm prod.	Change	General Hardware	Change
Nov.	788	+25	1,999	+105	...	..	4,984	+23	1,674	+54
Dec.	874	+60	3,275	+119	382	+ 90	2,474	+30	1,649	+72
Jan. '47	876	+45	1,616	+ 22	...	..	3,086	+30	1,038	+39
Feb.	782	+20	2,265	+114	...	..	2,272	+14	1,269	+40
Mar.	860	+35	2,577	+125	...	..	3,862	+10	1,934	+65
Apr.	720	+28	2,910	+147	...	..	2,743	+11	2,033	+41
May	681	+10	3,007	+140	...	..	3,559	— 6	1,718	+35

PACIFIC

											Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mchy., equip. and supplies excl. elec.	Change	Metals	Change
Nov.	3,135	+33	9,691	+130	2,262	+ 3	10,065	+17	5,353	+49	1,962	+45	1,215	+100	549	+49	766	+66
Dec.	2,962	+26	11,742	+137	2,426	+ 53	11,445	+23	3,858	+71	436	+12	783	+122	922	+31	625	+54
Jan. '47	2,795	+18	8,027	+ 84	2,675	+ 76	10,751	+ 6	4,547	+33	717	+22	1,485	+ 93	623	+28	...	....
Feb.	3,005	+23	9,029	+121	1,652	+ 33	10,050	+ 4	4,238	+44	....	....	750	+ 96	674	+57	...	....
Mar.	2,964	+19	9,877	+128	1,430	+ 9	11,886	+ 9	6,265	+47	2,188	+35	1,590	+ 64	1,060	+25	673	+30
Apr.	3,193	+18	10,077	+149	1,635	+ 1	11,775	— 5	6,955	+36	1,995	+30	1,604	+ 48	994	+15	..	....
May	2,930	+ 9	12,158	+109	2,640	+ 53	10,425	— 3	6,114	+22	249	— 2	1,223	+ 6	729	+27	...	....

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
January	266	313	279	333	241	272	230	276	301	344	264	336	268	326	319	368
February	299	330	312	344	267	283	283	335	329	362	309	369	311	335	355	421
March	296	340	305	358	265	301	287	318	338	375	293	370	300	330	343	404
April	292	315	321	340	260	281	275	297	309	324	250	320	286	313	320	363
May	305	323	315	349	281	287	294	315	355	360	282	308	278	279	344	365
June	315	310	341	342	282	284	280	311	350	349	280	305	300	294	375	400

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings 1945	Carloadings 1946	Received from Eastern Connections 1945	Received from Eastern Connections 1946
December	586,302	487,495	240,906	258,838
	1945	1946	1946	1947
January	468,913	508,343	240,907	260,660
February	467,054	489,366	243,725	263,027
March	589,337	665,079	320,827	360,213
April	447,932	522,144	237,236	279,392
*May	566,795	685,897	297,239	361,084
June	554,501	562,274	267,951	272,144

*5-week period.

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average for month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

	Demand Deposits	Time Deposits
December 1946	8,856	5,705
January 1947	8,802	5,789
February	8,513	5,807
March	8,277	5,863
April	8,196	5,854
May	8,239	5,861
June	8,292	5,885

BANK LOANS

Industrial, commercial and agricultural (In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 Western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

January 1947	1,131
February	1,164
March	1,189
April	1,198
May	1,189
June	1,188
July	1,698

GOULD AND PHILCO

JOIN HANDS TO BRING YOU

BETTER BATTERIES...
BETTER SERVICE...
BETTER DELIVERIES...

THE Storage Battery Division of Philco Corporation joined forces with the Gould Storage Battery Corporation on June 28, 1947.

Together, we can give you better batteries, faster deliveries, and better service than either of us could alone.

The consolidated organizations will operate under the name of Gould.

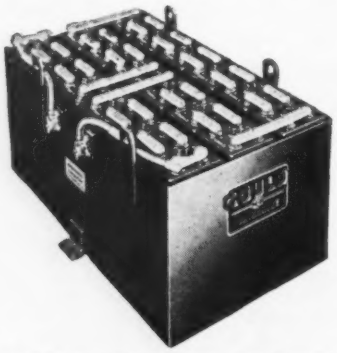
Both the Gould plant at Depew, New York, and the former Philco plant at Trenton, New Jersey, will continue to produce at full capacity, industrial storage batteries of the same high quality as heretofore.

The sales and service organizations of Philco and Gould will be blended together to give you most outstanding service.

The facilities of the new, modern Gould Laboratory at Depew, New York, will bring to both Philco and Gould users all technological advances now in development.

We, the united personnel of Gould and Philco, can offer you better service and faster deliveries — now! We promise you even better batteries for tomorrow.

President
Gould Storage Battery Corporation



● *Batteries produced at the Gould plant, Depew, New York, will continue to be designated by the familiar Gould name and trade mark. For example, Gould types KRLD, KHD, KTD and KMD will continue to carry the same identity.*

● *The name "Philco" on batteries produced at Trenton will gradually be replaced by the name "Gould". For example, Philco "Thirty" types AMH-P, XL-P and XVL-P will be called Gould "Thirty" AMH-P, XL-P and XVL-P.*

GOULD STORAGE BATTERY CORPORATION
TRENTON, NEW JERSEY — DEPEW, NEW YORK

GOULD

"Thirty" and KATHANODE **BATTERIES**

For Gould Service call Gould in the following cities: Boston, Mass. • Cincinnati, Ohio • Cleveland, Ohio Chicago, Ill. • Denver, Colo. • Depew, N.Y. • Detroit, Mich. • East Point, Ga. • Kansas City, Mo. • Los Angeles, Cal. • New York, N.Y. • Philadelphia, Pa. • Pittsburgh, Pa. • St. Louis, Mo. • St. Paul, Minn. • San Francisco, Cal. • Trenton, N.J. • Washington, D. C. • West Salem, Ore. • Kingston, Ont., Canada

POWER AND FUELS (Cont'd from pg. 25)

near Queets. A local organization, Harmony-Pacific Oil Co., was planning to begin drilling by August in Grays Harbor County.

New wells drilled in California for the year up to the end of July totaled 1,104. Same period last year, 1,033. Deepening and redrilling, 539; last year, 502.

Metals

More than 350,000 tons of iron and steel scrap, ranging from machine tools to demolition "snakes" for land mines, is presently available at seven government depots in the northern California area and should be released immediately, according to the report of the San Francisco regional sub-committee representing the national committee of the steel industry for expediting iron and steel scrap.

A more complete version of the committee report appears in the "Sierras to the Sea" regional news review elsewhere in this issue of *Western Industry*. The sub-committee, composed of steel and scrap industry representatives, spent four days in company with government officials inspecting the depots. Some of the material already is in the hands of War Assets Administration and is being disposed of as rapidly as possible. The rest belongs to other government agencies and has not been released as surplus. The sub-committee reported that the government agencies were too slow-moving, and that a united effort would have to be made by all of these agencies in order to meet the scrap crisis.

Steel prices in the West were all advanced early in August to meet the national pattern of price increases following the raise in wages obtained by the coal miners.

The Pacific Coast was the third area in the country in volume of steel castings shipped in 1946, according to Bureau of the Census. East North Central district (Great Lakes area) was first with 680,840 short tons, the Middle Atlantic area second with 496,821 tons, followed by 77,258 tons for the Pacific Coast. Mountain states area shipped 13,644 tons.

First test run on 30,000 tons of Eagle Mountain ore at the Fontana steel mill has been completed and reported satisfactory. Earlier announcements said this ore would run 53 per cent iron.

Current employment in the non-ferrous metal mining industry indicates a slow but gradually rising level of production, despite the protracted wage negotiations. The manpower problem will be aggravated in early September by the return of some summer workers to school. But this should be offset by a more attractive wage scale, which the miners are certain to get in the present negotiations.

Production of aluminum and aluminum-base alloy castings, one of the major uses for pig and ingot, totaled almost 389 million pounds in 1946, less than two per cent below the 395 million pounds shipped in the war year 1945. California's production, 30 million, ranked fourth, Ohio leading with 94 million pounds, Wisconsin and Illinois second and third, respectively with 51 million and 39 million pounds.

California ranked fourth in copper base alloy castings, with 61 million pounds. Leaders were: Ohio, 157,123 million pounds; Illinois, 110,759; Michigan, 77,139.

Aluminum roofing has been added to the list of products fabricated at the Trentwood rolling mill at Spokane.

Dr. E. B. Parker, director of the institute of technology at Washington State College, predicts the eventual use of aluminum for irrigation flumes on Western irrigation projects as a major new use for the metal. Up to the present time wood or sheet steel have been used mostly.

Shipbuilding

Repair and reconversion work on two Army transports, the Shanks and Ainsworth, has been awarded to Bethlehem, thus giving the shipbuilding industry its first big upward fillip in a long time, offsetting somewhat Matson's suspension of work on two of its luxury liners. Shipbuilding employment in California for June was down to 23,700, a drop of 1,400 from May. In Washington employment was 5,732 in May.

Aircraft

Lockheed has a $7,500,000 contract to modernize 508 P-80s jets for Army, and Consolidated Vultee a $2,000,000 order for six transports from Sabena, the Belgian national airline, making a total of 171 transports on order. Aircraft and parts employment for June in California was 91,600, down 3,500 from May. Washington aircraft (Boeing) for May 11,854, approximately same as April.

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1945	1946	1945	1946	1945	1946	1945	1946
Dec.	878,095	1,002,170	1,020,513	1,413,478	1,026,147	1,490,316	2,046,660	2,903,794
	1946	1947	1946	1947	1946	1947	1946	1947
Jan.	898,099	1,061,564	1,049,322	1,477,873	1,032,828	1,466,716	2,082,150	2,944,589
Feb.	948,496	962,756	968,484	1,328,994	1,096,306	1,301,334	2,064,790	2,630,328
March	976,658	1,041,287	1,036,585	1,454,305	1,333,305	1,531,005	2,369,890	2,985,310
April	893,992	1,012,461	982,232	1,352,340	1,374,077	1,597,737	2,356,309	2,950,077
May	976,801	1,068,190	989,436	1,346,351	1,467,259	1,674,755	2,456,695	3,021,106

PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)
(From Bureau of Mines)

	CRUDE PRODUCTION (Barrels, daily avg.)	TOTAL DELIVERIES (Thousands of barrels daily) GASOLINE		GAS OIL & DIESEL		HEAVY FUEL OIL		ALL PRODUCTS	
	1946	1945	1946	1945	1946	1945	1946	1945	1946
December	879,251	265	308	117	146	479	416	969	993
	1947	1946	1947	1946	1947	1946	1947	1946	1947
January	884,149	248	313	139	177	432	420	917	1,035
February	900,825	283	320	129	142	439	425	947	1,012
March	903,899	300	304	106	117	448	390	963	932
April	906,317	274	336	101	125	376	385	851	988
May	912,376	323	332	78	85	351	357	864	912

BITUMINOUS COAL AND LIGNITE

(In thousands of tons. From Bureau of Mines)

	(Colo.-N. Mexico)		(Wyoming)		(Utah)		(Montana)		(Wash.-Alaska)	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
January	812	968	980	912	630	748	425	420	121	150
February	769	808	830	755	590	743	365	298	138	132
March	823	769	856	732	638	726	340	286	146	145

NATURAL GAS

(CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	—Number of Consumers—		*Utilization (in thousands of cubic feet)			
	Domestic and Commercial	Industrial	Domestic and Commerc'l Sales	Industrial Sales	Electric Generation	Net Receipts from Producers
January	2,230,922	5,732	28,380,594	7,381,909	1,158,067	40,264,071
February	2,241,606	5,695	25,608,969	8,048,789	2,090,694	32,750,623
March	2,250,870	5,691	19,840,856	9,172,740	1,924,870	32,201,562

**Utilization figures do not include company use, storage, and unaccounted for.*

IRON AND STEEL

Western Area of the United States
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
Jan. 1947	169,306	79.0	346,524	84.3
February	168,209	87.2	321,192	86.5
March	196,358	91.6	375,727	91.4
April	177,849	86.4	337,054	84.6
May	191,345	90.4	369,243	89.8
June	186,364	89.3	352,215	88.4

Alloy Steel

	Output	Carbon Ingots, Hot Topped*
January 1947	7,295	11,276
February	4,387	7,936
March	4,405	10,718
April	5,403	8,857
May	3,887	16,046
June	4,707	12,682

*Included in total steel.

COPPER

(Short tons. From U. S. Bureau of Mines)

	ARIZONA		UTAH		MONTANA		NEW MEXICO		NEVADA		TOTAL 11 WEST'N STATES	
	1945	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945	1946
December	23,000	30,300	15,300	17,800	5,455	4,850	*	4,100	*	4,400	53,964	62,245
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
January	25,300	30,700	11,000	22,550	6,050	5,350	*	4,614	*	3,800	52,046	67,383
February	24,300	29,450	500	21,800	5,400	5,050	*	4,732	*	4,000	38,822	65,383
March	22,300	32,000	650	24,250	5,300	5,550	*	4,840	*	4,100	38,075	71,112
April	16,400	30,200	500	23,500	....	5,200	4,287	5,471	4,800	4,050	.....	68,853
May†	16,350	31,000	500	25,000	....	4,800	3,906	5,368	4,350	4,600	....	71,180

**Included in total. †Preliminary figures.*

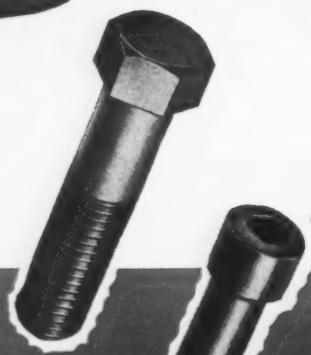
avoid fastener breakage and throw-outs . . .

Use

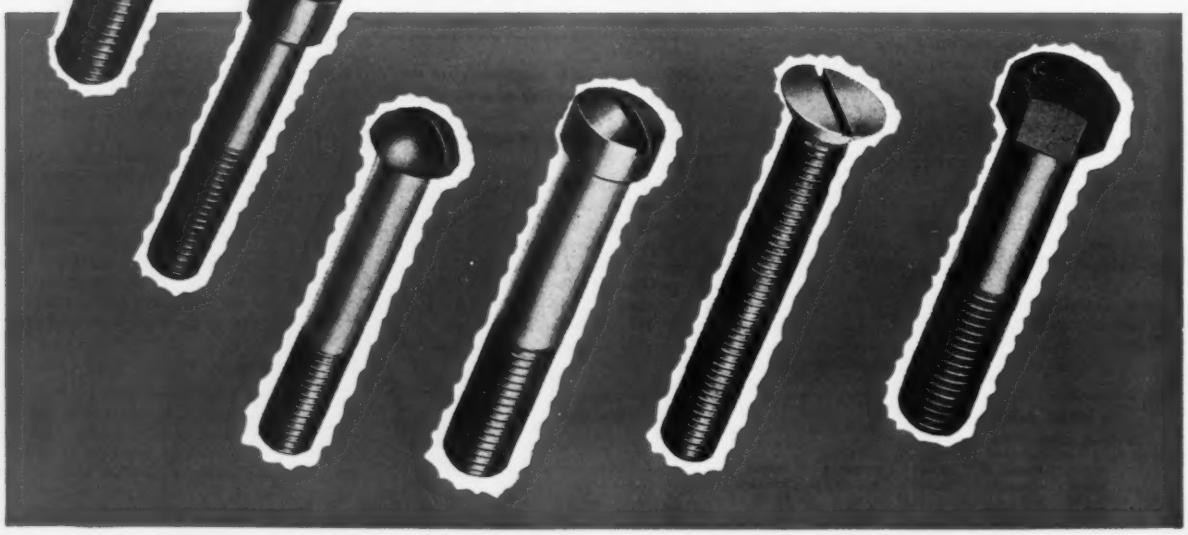
CLEVELAND FASTENERS

made by the

KAUFMAN DOUBLE EXTRUSION PROCESS



Extra strength in Cleveland Fasteners is guaranteed by this well-known method which was originated in our plant. Our manufacturing capacity is concentrated on standard cap screws—a complete range of sizes in hexagon, fillister, flat, button and socket head—high quality square head set screws, and special headed and threaded parts to your order. Write for folder explaining the Kaufman Process.



The Cleveland Cap Screw Company

2917 EAST 79TH STREET • CLEVELAND 4, OHIO

LOS ANGELES 21
1015 Santa Fe Ave., Van Dyke 2994

SAN FRANCISCO 5
50 Hawthorne St., Garfield 1-2075

SEATTLE 14
1006 Lowman Building, Seneca 2420

DENVER 4
100 West 13th Ave., Main 0063

CLEVELAND *Top Quality* **FASTENERS**

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY

Lumber

Shipments of Douglas fir lumber for the first six months of 1947 were 112.5 per cent of those for the same period of 1946, according to West Coast Lumbermen's Association. Production is 111.7 per cent of last year, and orders 120 per cent. After a rather quiet month, orders for Western pine species took a sudden jump during July, according to the Western Pine Association, indicating that demand for lumber is still high. Much of the slump in demand during June is attributed to refusal of shipments below desired quality.

In western Oregon a stand of 5,500,000 board feet was sold to a plywood manufacturer for almost double the appraised price, the sale being made by auction. Another auction in central Oregon failed to bring out any such high bidding and was sold for only slightly over the appraisal value.

LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through May	1945	1946	1947
Production	3,114,355	2,611,583	2,902,401

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through April	1946	1947
Production	607,042	782,432

Plywood

Southward trend of the lumber industry is also being reflected in the plywood division with the recent opening of two new plywood plants, one near Myrtle Creek in southern Oregon, and another at Arcata, California. A hardwood plywood plant has recently been placed in operation at Aberdeen, Washington, to utilize primarily cottonwood and alder in that region.

SOFT PLYWOOD

From Bureau of the Census
(In thousands of square feet)

	1945	1946
December	75,100	121,816
	1946	1947
January	106,883	140,058
February	.....	129,622
March	109,005	139,779
April	120,152	148,027
May	128,489	141,752

Pulp and Paper

Puget Sound Pulp & Timber Co. has made a preliminary survey for establishment of a $15,000,000 pulp mill near Ketchikan, Alaska. Presumably, action by the Congress in approving the sale of timber in Tongas national forest will be a major help in furthering the plans of Puget Sound Pulp & Timber. Establishment of five paper mills is said also to rest on approval of the Tongas timber sale.

PULPWOOD

(Pacific Northwest)
(Cords of 128 cu. ft., roughwood basis. Source: Bureau of Census)

	Receipts	Consumption
December	284,804	228,317
January 1947	305,850	263,493
February	319,800	243,794
March	365,874	271,419
April	403,316	267,911
May	457,888	269,966

Chemicals

Ethyl alcohol production from wood waste has been suspended at the Eugene, Ore., plant operated by the Willamette Valley Wood Chemical Co. After successfully proving that the process was feasible during several months trial run, the plant is now the subject of negotiations between RFC and officials of the operating company. Indications are that Oregon lumber operators backing the company are not anxious to put up any large share of the original $3,000,000 cost of the plant (their present equity is less than 10 per cent) but would like to take over the plant at a considerably reduced price, or continue operations with RFC financing to eliminate production bugs that appeared during the trial run.

It is reported that construction of a sodium processing plant is being considered near Westby in eastern Montana, said to represent a $300,000 investment. North Dakota and Montana are the principal sodium deposit locations in the United States, but heretofore sodium has been largely imported.

University of Idaho metallurgists have reported that concentration of low grade phosphate rock into commercial phosphate products utilizing the southern Idaho deposits is economically feasible. At least one organization, that of J. R. Simplot, is known to be considering establishment of a treatment plant to process the Idaho phosphate shale.

Sulphuric acid production in the 11 Western states for 1946 was 588,336 short tons, compared with 690,446 tons for 1945. Gulf Coast and Baltimore area production also decreased substantially, but the U. S. total was only slightly down.

Sharp price advances in phthalic anhydride and dibutyl phthalate will affect production costs for paint and resin manufacturers.

DDT is in plentiful supply and vegetable oils are down.

Building Materials

American Appraisal Co. construction cost index (1913=100) shows the following changes for four Western cities (indices reflect cost trend in each city, but not the relative trend between cities):

	Decontrol Nov. 1946	March 1947	April 1947	May 1947
Denver	326	370	378	379
Seattle	351	418	433	436
San Francisco	323	379	390	392
Los Angeles	344	394	402	419

Cement shipments have been slightly less than production capacity in California, and there has been a slight gain in storage, but the rate of storage is still not nearly up to normal. Pacific Northwest and the mountain area have been shorter of cement than California.

A four-weeks' strike at Gladding McBean's San Francisco plant has not helped the sewer pipe situation, but on the whole the situation is steadily improving. A country-wide improvement in tile has taken place, due largely to increased facilities, production for the first five months of the year being 44 per cent greater than 1946. In California approximately 6,652,800 square feet were available during this period of a national total of 33,264,000 square feet, according to R. F. Bailey, West Coast advisory committee member of the Tile Council of America.

CEMENT

(In thousands of bbls.; from U. S. Bureau of Mines)

	—California—		Oregon - Wash.		Colo.-Wyom. Mont. Utah - Idaho	
Dec.	1,174	1,757	286	376	320	374
	1946	1947	1946	1947	1946	1947
Jan.	1,159	1,797	234	295	233	318
Feb.	1,355	1,613	250	296	109	297
Mar.	1,629	1,907	298	460	245	332
April	1,670	1,901	432	523	356	337
May	1,745	1,938	317	523	413	410

STRUCTURAL CLAY PRODUCTS

	UNGLAZED BRICK (in thousands of standard brick)		UNGLAZED STRUCTURAL TILE (short tons)		VITRIFIED CLAY SEWER PIPE (short tons)	
	Mountain	Pacific	Mountain	Pacific	Mountain	Pacific
Dec.	9,546	13,875	1,423	3,275	1,800	11,832
Jan.	8,955	11,782	2,120	4,049	2,347	11,130
Feb.	9,334	14,038	1,853	4,205	2,183	9,776
Mar.	10,825	12,694	2,352	3,156	2,153	12,611
April	12,333	17,467	2,257	3,661	2,354	13,377
May	13,780	24,355	2,687	3,108	2,498	14,067

ASPHALT ROOFING

(Ariz., Calif., Idaho, Nev., Ore., Utah, Wash.)

	ASPHALT ROOFING *(Sales squares)*	SATURATED FELTS *(Tons of 2000 lbs.)*
December	787,815	4,768
January '47	759,807	4,695
February	727,533	4,271
March	761,481	5,426
April	793,719	4,832
May	811,578	4,799

Canning and Packing

California canneries are in the midst of a heavy peach season that may run close to last year's record pack of 17,285,000 cases. Against early predictions that it would only be 15,000,000 to 16,000,000 cases at the most is the fact that canneries have run far under capacity on earlier items and therefore need all the peaches they can get to build up their 1947 output. Apricot pack was short, probably not more than 1,800,000 cases, compared with last year's all-time high of 10,223,000 cases.

The threatened pineapple strike in Hawaii was averted temporarily in time to prevent much effect on the 1947 packing season, provided, of course, that there is no new outbreak of trouble.

California cannery production for the year ended June 30, 1947, exclusive of fruits and animal food, is reported by the cannery inspection section of the State Department of Health as about 1¼ million cases below last year, as follows (in cases):

	1946	1947
Miscellaneous vegetables	6,092,475	5,450,708
Asparagus	2,056,755	1,586,423
Olives	1,060,630	2,060,264
Spinach	2,648,114	1,789,242
Specialties*	2,833,918	2,482,021
Fish	9,170,913	8,887,627
Total	23,862,805	22,256,285

*Chile con carne, soups, raviolis, etc.

California quick-frozen pack of winter vegetables, in the period from Jan. 1 to May 15, was 11,955,403 lbs., just about one-third of last year's 32,313,570-lb. pack. Figures compiled by Western Frozen Foods Processors Assn.

(Continued on page 31)

WHEAT FLOUR

(In thousands of sacks; from Bureau of the Census)

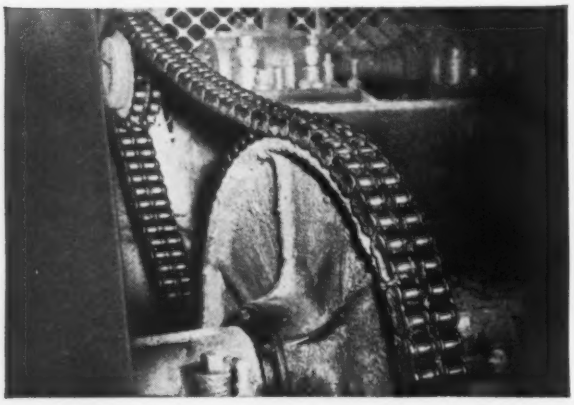
	Ore.-Wash.	Montana	Utah-Idaho	Colorado	California	Total
December 1946	1,865	357	515	444	396	3,883
January	2,033	385	532	481	452	3,402
February	1,665	329	506	455	409	3,364
March	1,794	397	539	495	463	3,688
April	1,694	360	526	448	420	3,448
May	1,701	362	484	467	362	3,376

do you know Roller Chain...

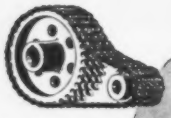
ELIMINATES MORE THAN SLIPPAGE!

① **POSITIVE BALDWIN-REX ROLLER CHAIN DRIVES** not only stop power-wasting slippage, they also eliminate damage to your machines by their inherent elasticity that absorbs shocks and overloads. And, their exceptionally long service life eliminates frequent "time-outs" for repairs and adjustments.

② **I'M NOT JUST TALKING** on that long-life angle. In our product development laboratories, we actually prove the wear-resistant qualities of Baldwin-Rex. This machine, for example, runs the chain over small sprockets at excessively high speeds under conditions considerably more severe than actually encountered to determine life expectancy. In this manner, we get data on materials, heat-treatment, parts design, etc., that mean added service for you.



③ **THIS PLANT** found the exceptionally long life built into every link of Baldwin-Rex Roller Chain a big help in keeping the wheels turning without interruption. Despite repeated shock loading, the drive required very little servicing and no down-time for repairs. You'll find Baldwin-Rex can do the same for you!



You can simplify replacement and chain selection, cut costs, and improve deliveries by buying standard roller chains. Your Baldwin-Rex man will be glad to give you the facts on standard chains and help you with your application problems.

BALDWIN·REX

ROLLER CHAINS

BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY

352 Plainfield Street, Springfield 2, Mass.

THE WESTERN OUTLOOK (5)

(Continued from Page 29)

Pacific Northwest pea pack about equal, possibly above, 1946 pack of 8,107,000 cases. Quality reported remarkably high. Frozen pea pack same as or slightly under 1946.

Tuna catches off the coast of Oregon and Washington during July reached 1,500,000 pounds, the best since the all-time high of 1944. Predicted that the 1947 catch would exceed 1944 before the end of the run. An unusual number of tropical tuna was reported in addition to the albacore.

Salmon pack at the Alaska canneries is running well ahead of last year. Up to July 19, 82 canneries reported a pack of 1,826,270 cases compared with 1,067,826 cases packed by 87 canneries by the same date in 1946. Since 1940, only two years had packs greater than this eary at this point in the season.

Sugar

Hawaiian cane sugar production this season is expected to be about 25 per cent above 1946, and beet sugar about 12 per cent. Although ending of consumer rationing resulted in a big increase in household demand, a similar effect did not follow when industrial rationing was stopped, mainly because industrial users had not been so severely restricted in the control period. Another reason, however, is the fact that industrial users are still not allowed to build up inventory beyond 140 per cent of two months' use.

Estimates of the Hawaiian crop still stand at 850,000 tons. Beet sugar refining in California is expected to be about 8,000,000 bags, compared with 6,670,000 in 1946. Pacific Northwest output is estimated at 3,000,000 bags, not much of an increase over last year. The Rocky Mountain area harvest comes later, starting in October, and normally the increase in plantings over 1946 should provide approximately 17,264,000 bags, as against 15,432,000 a year ago.

Flour

The current bumper wheat crop has many bakers thinking flour will not be only plentiful but also cheap, but the millers say demand is still in excess of supply and price levels are bound to rise rather than fall. Some bakers are holding out in the hope that arrival of Montana spring wheat will depress the price, but millers point out that when new crop soft wheats came in a differential of 60c per cwt. in price between old and new crop was wiped out in three weeks. Another factor in the picture is the recent burning of the Western mill at Pendleton, Oregon, which had a capacity of 3,000 sacks a day.

Apparel

Price resistance has had some effect on the apparel industry as a whole. However, manufacturers say that retailers seem to have forgotten there are normal seasonal slumps in the industry, of which the present is one, especially in women's and juniors' outer apparel. Men's work clothing remains on the same high level.

APPAREL

(In thousands of dollars)

Total Women's, Misses' & Juniors' Outerwear

	Los Angeles	San Francisco
November	$8,237	$2,070
December	6,565	1,811
January, 1947	8,990	2,309
February	8,511	2,324
March	9,094	2,324
April	7,118	1,721

	Overalls Men's (thousands of dozens) California	Men's Wool Work & Dress Trousers (thousands of units) California
March, 1947	21.0	96.3
April	22.5	91.1

Fits perfectly

IN YOUR ROLLING EQUIPMENT PUZZLE . . .

Colson Casters are made for loads of 75 to 1500 lbs. per caster. They come with cushion rubber. Colsonex plastic. steel. aluminum alloy. You can get them with Durex permanently lubricated bearings or Colson annular ball bearings There's the correct Colson Caster regardless of your needs, whether for flat plates. stems. bracket mountings. rigid or swivel fork.

Colson Casters are built with precision workmanship — to transport sensitive instruments or heavy equipment. Years of trouble free service are assured by careful engineering plus quality materials.

The Colson Caster fits perfectly into any rolling equipment puzzle. You'll find that they will not only protect your floors. but save time and work.

Write Today for the Colson Caster Catalog

COLSON EQUIPMENT & SUPPLY CO.

1317 Willow St. LOS ANGELES 13 TRinity 5744

350 10th St. OAKLAND 7 TEmplebar 3556

235 Mission St. SAN FRANCISCO 5 GArfield 0282

The Department Store Idea

When you think of a Ryerson Plant, picture a huge department store featuring all kinds and shapes of steel. In place of the ordinary sales personnel, think of a large staff of experienced steel men—a sales department that's been carefully trained to guide your steel purchasing—to see that you get the exact steel you need for the job at hand.

And, when you think of Ryerson Steel-Service, think of a smooth-flowing system of steel supply that eliminates every unnecessary delay between order desk and point of delivery. Think of the most modern steel storing, cutting and shipping methods —methods based on more than a century of performance. And remember that Ryerson Steel-Service functions with the same efficiency and promptness whether your order calls for pounds or tons.

Naturally, today's great demand for steel frequently unbalances our stocks. But if the steel you need is not immediately available, we'll gladly do everything possible to supply you with a practical alternate.

What does it all add up to? Well, just about the last word in steel-buying convenience. And it's all yours when you contact a Ryerson Plant for any steel requirement.

•

Joseph T. Ryerson & Son, Inc., Box 3817, Terminal Annex, Los Angeles 54, Calif. Other Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

RYERSON STEEL

Spotlight on the NEWS

WESTERN INDUSTRY
FOR SEPTEMBER, 1947

VOLUME XII NUMBER 9

For picturesque prophecies, listen to this advice by the Pine Industrial Relations Committee, Inc., of Klamath Falls, Oregon, to unions who announce they are going to ignore the Taft-Hartley Act and boycott NLRB:

"The boys would do well to study the historical tracks left by *some* employers after passage of the Wagner Act. They might learn that they are choosing to go down a rough, rocky trail, too narrow upon which to effect a 'turn around.' It is lined with sidewinders and bear traps. The trail leads down a blind canyon walled in by public opinion. On the rims are balancing rocks that create avalanches when they are tipped. Under such circumstances, even backing up for a fresh start proved difficult, painful, and — definitely — not 'face saving'."

51 Significant Words

Explaining the reasons for his company's decision to erect a headquarters building in Los Angeles, President C. M. Shanks of the Prudential Insurance Company said:

"We are at a great turning point in our national set-up. During the next few decades we are going to see a tremendous shift of the financial and economic control of industries to the West and Southwest. I do not mean branch offices, I mean the actual economic and financial control."

Squeeze Play on Juice

Canned orange juice in the midst of citrus groves seems to irk visitors to San Diego more than anything else, according to the letters received by the chamber of commerce.

But the city is between the desert and the deep sea on this proposition. A checkup revealed that many, if not most, of the local hotels and restaurants are serving bottled orange juice, and one informant said the cost of serving freshly-squeezed orange juice was so high that the practice was abandoned to eliminate complaints from patrons.

Meanwhile the Exchange and M.O.D. have put the price on fruit for juicers at $25 a ton, which some people are unkind enough to say is intended to squeeze canned juice completely out of the picture.

Northwestern Growth

The Pacific Northwest grew about 25 years in five, so Thad Stevenson of the Tacoma Chamber of Commerce is saying.

Talking in terms of payrolls, he points out that Seattle's payroll in 1940 was $127 million (for the entire state of Washington it was only $132 million in 1932), jumped to $455 million in 1943 and in 1946 leveled off at $343 million.

Portland had only $63 million in 1940, soared to $396 million three years later and in 1946 was $119 million, about double the 1940 figure. Tacoma had only $41 million in 1940, but two years later the payroll was $153 million, and in 1946 it was down to $104 million, more than twice the 1940 total.

Spokane was at the $26 million point in 1940, climbed to $67 million and then eased off slightly to $72 million last year, and now it is again on the upswing.

Washington's state census board says preliminary figures in a population count which will be completed September 15 show that the state gained 350,000 persons in five years, and is now stabilizing at about 2,125,000. The loss from the war peak is only 50,000, apparently concentrated largely in the war-industry towns of Bremerton, Vancouver and Port Orchard. Both the Puget Sound area and eastern Washington gained substantially.

Sink or Swim Order

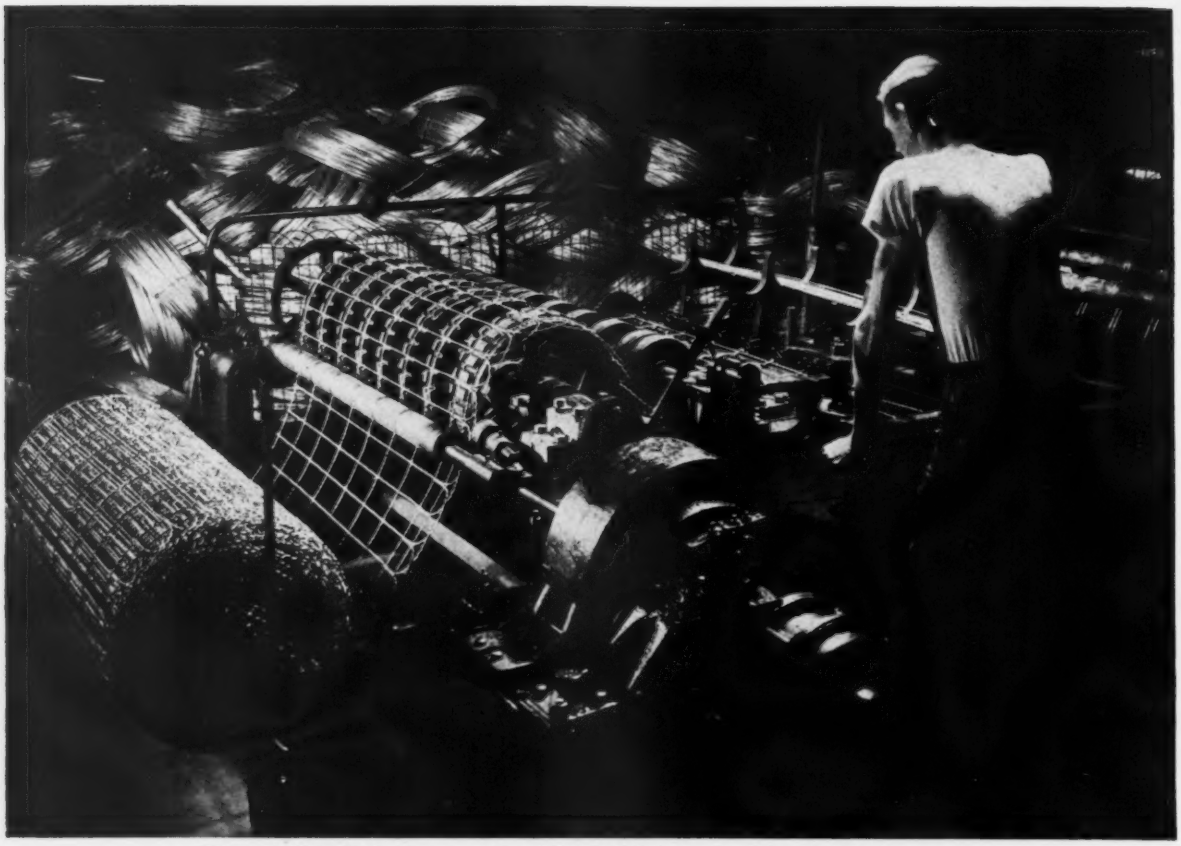
President Truman's veto of the premium price plan for copper, lead and zinc was not only a big shock to the mining industry in the West, but also a great surprise, as he had publicly dwelt two or three months ago on the need of developing mineral resources.

Zinc and lead mines that had increased their output since 1941, thereby getting a development bonus on the increase, and new mines that started with a "zero quota" and so got a bonus on everything, will be particularly hard hit. Some observers say the effect will be as bad as when the reciprocal trade agreement with Canada was signed in 1939, taking the tariff off Canadian zinc. Then half the mines in the tri-state area closed down overnight.

Although the rise in price of metals had eliminated most of the actual premium payments, the plan served as a price guarantee so that mines could finance development work with the assurance that they would be safe for two years at least. With nothing but the uncertainties of a free market to support the price, none but the best-financed mines can afford to block out new ore bodies.

In short, it is a blow to the small mines, and a victory for the large concerns who can step up production in their foreign holdings, according to Secretary Bob Palmer of the Colorado Mining Ass'n.

The President's view is that these wartime subsidies conflict with peacetime conservation. He said it was short-sighted in time of peace to exhaust dumps and tailings, instead of allowing them to remain available for future emergencies. Evidently he did not realize how expensive it is to tackle an abandoned dump, and how impossible to develop overnight a metallurgical plant for treating "conserved" ores.



The wire for this fence was produced for the fabricator by Columbia Steel Company

Columbia produces wire that's tailored to fit your needs

Wire for fences...wire for bobby pins...wire for garage door springs...no matter what your product may be, if you use wire, your best bet is Columbia. For among the more than 400 types of U·S·S American Manufacturers Wire produced by Columbia, you can probably find the one that's tailored to fit your needs. Columbia, with the greatest wire-making facilities in the West, can produce special wire to meet your requirements.

Get complete information by contacting the Columbia office nearest you.

When you buy from Columbia you get more three ways:

1. *Versatility*...You can select the right wire from among more than 400 types, grades and finishes.
2. *Quality*... As the western member of *The Industrial Family that Serves the Nation*... United States Steel... Columbia gives you fullest assurance of the uniform high quality synonymous with U·S·S.
3. *Service*...Our specialists stand ready to help you select and use the wire that's tailored to fit your needs.

COLUMBIA STEEL COMPANY

San Francisco · Los Angeles · Portland · Seattle · Salt Lake City

AMERICAN STEEL & WIRE COMPANY

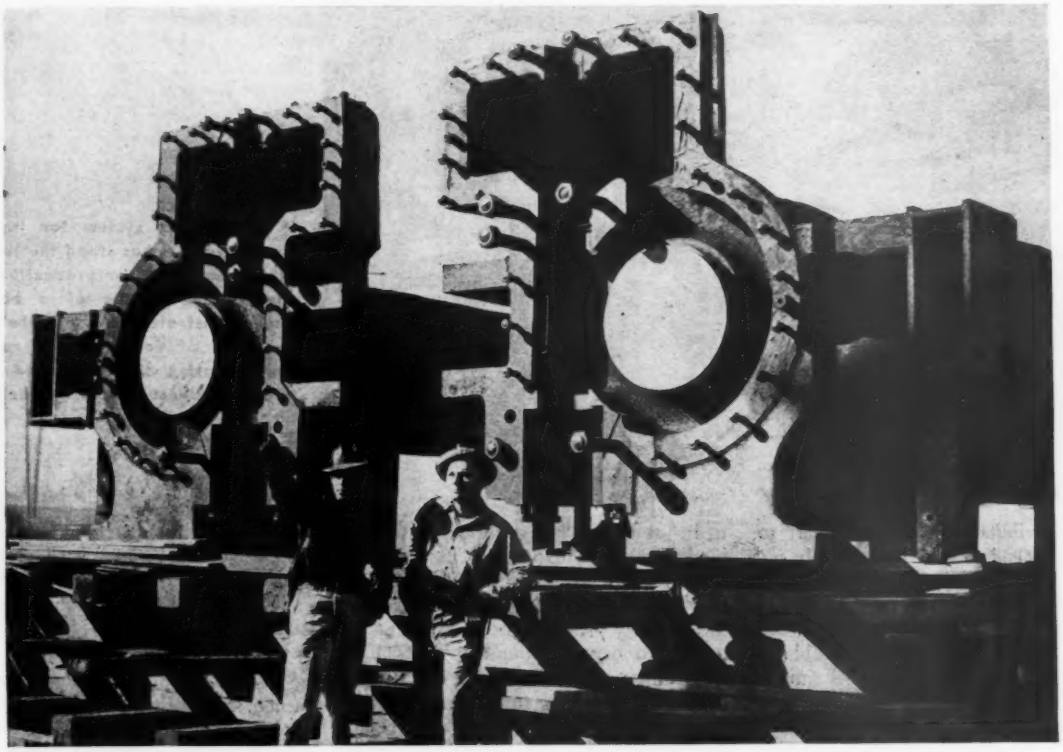
Cleveland · Chicago · New York

Tennessee Coal, Iron & Railroad Company, Birmingham, *Southern Distributors*

United States Steel Export Company, New York

USS AMERICAN MANUFACTURERS WIRE UNITED STATES STEEL

UNITED STATES STEEL



THE INDUSTRIALIZED WEST . . . *The vast steel housings for Columbia Steel Company's new cold reduction steel sheet and tinplate mill at Pittsburg, Calif. Each housing weighs approximately 100 tons and there are 10 such units. Part of Columbia's $25,000,000 expansion program, this mill will have a capacity of some 500,000 tons of sheet steel and tinplate.*

Combining Seniority and Merit To Govern Layoffs Fairly

INDUSTRY in general is confronted, first, by the fact that the average rank and file worker, expressing himself collectively, is likely to demand some form of seniority protection. On the other hand, the average employer feels that seniority formulas in general operate in disregard of valid differences in individual ability and merit.

In discussing this problem recently, Vice-President Guy Wadsworth of Southern California Gas Company pointed out that the general problem of seniority versus merit in promotions and layoffs appears to divide itself into two basic issues.

First is whether or not the employer can or should maintain the traditional practice of singling out exceptional employees, promoting them more or less at will without reference to their seniority in relation to that of other employees, and retaining such employees on the payroll when others in comparable jobs, but with greater length of service, must be laid off. Second, whether or not application of a seniority formula in promotions means that people who do not merit promotions must be promoted anyway, and whether observance of seniority in layoffs means that satisfactory employees must be laid off while non-producers are kept on the payroll.

The immediate point, according to Mr. Wadsworth, is whether or not we gain more by exercising a free hand in promotions than we lose by giving the average employee who is doing satisfactory work reason to feel that his chances for even a minor promotion can be foreclosed at any time that his supervisor, or perhaps some other supervisor, elects to promote someone else who is regarded as superior.

If normal expectancy operates in the distribution of exceptional employees in a total working force, some 20 to 25 per cent of the workers might validly be tabbed as exceptional or superior, and thus have a prior claim on promotions. How can we preserve the incentive of the remaining three-quarters of the rank and file, if one-quarter of the employees are given the inside track on the promotions to which the average rank and file worker can look forward?

Pressure for observance of seniority in layoffs, says Mr. Wadsworth, on the thesis that the man last hired should be the first

• AiResearch's system for lay-offs and call-backs has stood the test of transition from war production, including the closing of a branch plant. Illustrated at left is the final assembly of valve and oil cooler, an operation that employed hundreds at AiResearch during the war.

Governing Layoffs Fairly *(Continued from page 35)*

fired, is attributable at least in part to incidents alleged to have happened in periods of reduced business activity. Necessary layoffs, it is charged, have been used indiscriminately by employers to "weed out dead timber"; supervisors who did not have the courage forthrightly to remove employees who were not producing on the job in good times, lay in wait, so to speak, and caught the offenders at the cross-roads during periods of retrenchment.

Probably in comparatively few instances, he says, but certainly in enough cases to attract attention, workers of advanced age were laid off on this basis, and more promising newcomers kept in apparent disregard of term of service. Some of this happened in the 1930's, when attention was generally focused on unemployment, the problems of the senior citizen, and so on. The "job security" thesis may have hatched from eggs laid by thoughtless employers during this period.

AiResearch System

To govern lay-offs and call-backs, AiResearch Mfg. Corp. Division of the Garrett Corp. of Los Angeles developed in the war period a system combining seniority and merit, which has stood the test of transition back to present-day operating conditions.

It was not mapped out on a drawing board overnight, but was rather an evolution from long observation and calculation. At the height of war activity, when AiResearch had nearly 5,000 persons employed in two separate plants, the main factory in Los Angeles and a branch establishment at Phoenix. Now the company's activities in air control equipment for aircraft are confined to Los Angeles, the Phoenix operation having been discontinued, but the system continues with such modifications as experience has dictated.

To be sure, AiResearch has not had to face union opposition to any dilution of the seniority principle, because several attempts to organize the employees have been unsuccessful. But with the general labor tide beginning to show a few signs of receding from its tremendous surge of the last few years, the AiResearch ideas, in view of their obvious fairness, may eventually find their way into new wage contracts in other plants.

The question as to who shall be laid off or called back first is settled on a basis of accumulated points, subject to a final decision as to whether this basis meets operating needs of the plant.

Straight seniority is reckoned at the rate of one point for each month, from the first day of employment to the lay-off date. Married men and women earn two points for a dependent spouse and/or two points for each minor child, the total credit for dependents not to exceed six points. Single men or women get no points.

World War I veterans are allowed two points; World War II veterans seven points for domestic service and 12 points for overseas. Women with husbands in the armed services are granted five points, a provision that applied mostly in war time when women were supporting families while their husbands were absent in one of the armed services.

To determine efficiency, a reviewing method similar to those in vogue in many other plants is used. The factors determining the rating are shown in the accompanying illustration.

Each department head grades the employees under him. He does not have access to the number of points governing each factor, but merely reports efficiency on the job as he sees it. This efficiency grading is further reviewed by the division supervisor and the personnel reviewing officer.

The personnel office fills in the number of points after the reports have been turned in and then computes the average for an entire group doing similar jobs. As a result, every employee is so many points above or below the average, except for those few who may happen to land exactly on the average line. Four copies of the review folder are made: to show what changes are necessary in the payroll, to inform the foreman, to include in the personnel folder, and for the office file.

Making the Decision

When a lay-off becomes necessary, the last four efficiency reviews are considered and a summary card prepared. Then the absentee records are checked and anyone having more than 30 days absence in the last year has five points deducted from his score, while for anyone having less than 30 days absence five points are added. In less than 12 months periods, lost time is penalized if it exceeds 2.5 days per month average.

Although this allowance of 30 days is provided before assessing a penalty, an employee is not entitled to his annual vacation until he has made up all his absent time in excess of the allowable 30 working days lost time. This rule applies also in the case of sick leave, retirement and severance, and indirectly enters into the reckoning of upgrading and promotion.

Preparation of the figures for a lay-off is called a "run," and the total of all the points earned by each employee gives the point factor on which the lay-off decision

is based. When lay-offs are to be made, the first to be let out are those employees who are on the beginning 90-day probationary period. No benefits accrue to them during that period, but once the 90 days have been completed they are considered as having been regular employees for that period, with benefits in proportion.

Next after those on probation come the regular employees with the least points. If there are two or more employees with equal point ratings, seniority determines who shall be laid off.

The method described here is subject to the practical needs of each department. The foreman makes a list of those who can be spared with the least inconvenience, and this list is compared with the point records.

The number of instances in which the two considerations, point records and plants needs, are identical is surprising. If there is a difference, however, the personnel department checks back with the foreman and a logical adjustment is made. Perhaps one operator is not sufficiently versatile to warrant retention in a smaller crew. If there should be an actual disagreement that cannot be settled otherwise, it may be referred to the general manager. This contingency, however, never has arisen.

In calling employees back, the same system applies. Those with the highest rating are rehired first, subject to practical needs in each department. Seniority holds good for one year from the time of layoff. After that a former employee has to come back on the same basis as a new employee.

Voluntary Terminations

In the case of voluntary terminations, seniority lapses immediately. Every effort is made to prevent employees leaving for unnecessary reasons, and long interviews are held with each man or woman to see if the problem cannot be worked so the job will be retained and all the benefits that have been earned with it.

Employees who left to enter the armed services have all been reinstated in either their former jobs or comparable positions, retaining all their pre-service seniority.

The system is explained to employees in the booklet "Working Together at AiResearch" which all receive at the time they are hired. A sample of the efficiency rating chart used in reviewing is also placed in their hands. It bears a notation that each employee is graded by three individuals in order to insure a fair rating and to eliminate all personalities.

Details of the retirement and severance trust of The Garrett Corporation, of which AiResearch Manufacturing Co., Airsupply Company, Garrett Supply Company and AiResearch Aviation Service Company, are divisions, are explained in a separate booklet.

This is a voluntary plan, to which the employees make no contribution, by which a certain portion of the company's profits is put into a trust fund for the individual account of each participating employee.

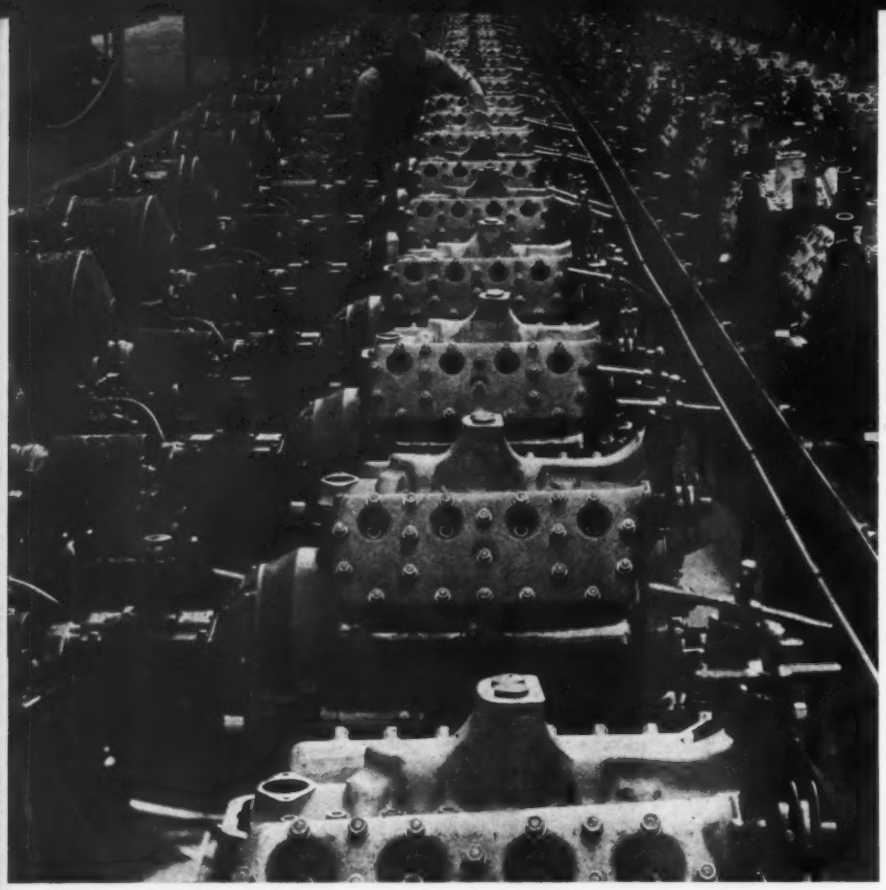
The company contributes semi-annually to the fund an amount equal to the base earning for two weeks of each participating employee, provided the total does not exceed the company's adjusted net income; if the latter is less than the aggregate base earnings, it is pro-rated. Distribution of the principal is made to employees upon severance in proportion to their term of employment.

• Sample of the efficiency rating chart used at AiResearch. The chart also rates employees on knowledge, dependability, attitude.

MASTER EFFICIENCY RATING CHART

This Rating Chart is to be used in conjunction with the Departmental Efficiency Review in arriving at a point decision as to the degree of efficiency earned by an employee in his service with AiResearch. You will note there are four grades under each factor. Choose the grade best suited to the employee you are rating and enter that grade number under the corresponding factor heading on the Departmental Efficiency Review.

QUALITY—Accuracy in work. Freedom from errors. Workmanship.	QUALITY No. 1 Makes practically no mistakes, successfully handles jobs requiring the highest accuracy.	QUALITY No. 2 Seldom makes errors, does high grade work, is accurate.	QUALITY No. 3 Makes average number of errors. Does passable work.	QUALITY No. 4 Makes mistakes frequently, is careless, just gets by, cannot be assigned to accurate work.
QUANTITY—Output of satisfactory work. Speed. Use of working time.	QUANTITY No. 1 Has unusual output, is exceptionally fast, seldom slacks off.	QUANTITY No. 2 Works hard and steady, is fast, does more than is expected.	QUANTITY No. 3 Turns out required work but seldom more, has average speed, does not overdo.	QUANTITY No. 4 Below average in output, is slow, frequently kills time.
ADAPTABILITY—Versatility. Adjustment to job or changed conditions. Ease with which new duties are learned.	ADAPTABILITY No. 1 Meets changed conditions with little effort, has outstanding ability to pick up new jobs.	ADAPTABILITY No. 2 Learns well with minimum amount of instruction, adjusts himself well in a short time.	ADAPTABILITY No. 3 Learns fairly well, is a routine worker and needs detailed instruction for a new job.	ADAPTABILITY No. 4 Is slow to learn, has trouble adjusting himself to changed conditions, needs constant instruction.



Ford wants suppliers to profit on making auto parts

By L. C. DISSER
West Coast Representative of A. J. Browning, Vice-President in Charge of Purchases, Ford Motor Company

OF CRUCIAL importance in the automobile manufacturing business is the relationship between the supplier of parts and the automobile manufacturer.

This, the fourth and concluding article on the Ford Motor Company's West Coast Purchasing Program, will attempt to explore and define various aspects of that relationship. Before doing so, however, it may be well to review briefly the major points of the three preceding articles.

The West Coast, it has been pointed out, is a natural field for the development of new sources of parts required in the making of automobiles. Its wartime industrial expansion increased its manufacturing facilities, enlarged its reservoir of skilled labor, and improved its raw materials outlook. Here, ready to hand, are plants where a comfortable competitive status waits only upon application of the principle that continuous, full-time use of facilities at a steady low margin of profit promises the soundest basis for a stable industry.

To achieve this end, as was pointed out in the second of these articles, suppliers need to know certain fundamental things about mass production. They must understand the importance of strict schedules and prompt deliveries, without which the assembly lines they feed must be interrupted or shut down. They must know how to plan each operation within their own plants so that schedules may be met. Without such knowledge, they are in no position to offer quotations that will meet the competition of other industrial areas and still leave them enough profit to permit continuingly successful operation and adequate returns on capital and managerial skill invested.

Methods of mass production, such as were outlined in the third article of this series, are essential to volume production. Plant layout, tool and equipment design, specifications covering parts and materials, and synchronizing of operations are examples of the interrelated engineering problems to be solved if efficient mass production is to be attained. What young Henry Ford calls "human engineering"—studies of working conditions, of employee skills, of job fatigue, job performance, job satisfaction—is no less important than plant engineering. Time studies and cost controls furnish a systematic basis for evaluating the various steps of an operation and for effecting savings in production costs.

These considerations have challenged the lively interest of West Coast industrial leaders. Within the past 90 days more than 600 businessmen and others have come into my office for interviews. Some of these men are heads of large corporations. Others are executives of organizations for the expansion of present, and promotion of new, enterprises. Still others are city officials, representatives of the press, inventors — and a few are just cranks.

But by far the greater number are businessmen, big and little, who wanted to hear more about the Ford Motor Company's plan to purchase parts and materials on the West Coast.

Many of these men owned or directed plants of considerable size. They were well equipped with tools and facilities and had ample financial background, but possessed little or no knowledge of mass production or low costs.

In many instances, our first interviews have been followed by others. Trips have been conducted through Ford assembly plants. Ford representatives have visited the prospective supplier's plant and checked into his problems. This procedure takes time, but it is time well spent. In this way, supplier and purchaser become thoroughly acquainted and learn how far to depend on one another to do the things that will be expected later. A friendly understanding at the outset is fundamental to the creation of a sound relationship between the supplier and the company.

Relations between the Ford Motor Company and its suppliers have always been a subject of intense interest to the principal officials of our company, possibly because suppliers have played such a large

part in our business since its inception. For in our business, where prompt and dependable deliveries are so important to the fulfillment of each day's schedule, the supplier is like a player on a baseball team. Like the manufacturer, he must realize his responsibility and do his individual part, or the whole cycle of production will cease.

But, again like the player on a well-coordinated team, the supplier who discharges his responsibility shares in the success — the profits — of the industrial team. Among the many corporations which have been doing business with Ford over a long period of years are Budd Manufacturing Company, Briggs, Motor Products, Murray Body, Ainsworth, Bundy Tubing, Moore Drop Forge, Timken Axle, Firestone Tire & Rubber, Kelsey Hayes, Long and McCord Radiator. These firms have benefited from the volume market which Ford requirements represent. And there are many concerns which, while contributing to Ford's success, owe their existence to this association.

Suppliers Must Profit

Far from being uninterested, Ford is vitally concerned that its suppliers should make a profit. Cutting costs of volume production need not—indeed must not—involve squeezing the supplier out of his profit. It is simply good business for Ford, as a manufacturer, to insist that suppliers make a reasonable and proper profit. We have to depend upon our suppliers. Therefore, they must be dependable—financially and otherwise.

Many concerns have been hesitant to get in touch with us because of fear that they could not meet our costs, or that they would have to make capital investments in machinery or perishable tools to produce our parts. It is evident that these manufacturers—as was suggested in the first article in this series—must develop a mass production "attitude."

Capital investments may indeed be required; and it is highly improbable that these can be amortized within two or three years if the supplier is to establish himself competitively in the large-volume, low-profit mass market. If, however, the supplier considers a continuing market for 15-20 years in reckoning his ability to invest and in prorating amortization as part of his costs, he may well discover that he is in a strong favorable industrial position. He should remember, too, that the purchases Ford proposes to make are only a part of the potential annual market for his products. Other automobile manufacturers are watching with keen interest the progress of the Ford Purchasing Program, and will jump at the chance to procure loose parts locally if they are convinced that our program is succeeding.

The history of the automobile industry on the West Coast lends support to the foregoing prediction. Today assembly plants of various companies are making 14 different kinds of automobiles on the Coast. The erection of these plants followed some time after the pioneering assembly operations of the Ford Motor Company in this area.

In 1913 Ford erected its first West Coast assembly plant, at San Francisco. This plant operated until 1930, when a new and modern plant was erected in Richmond.

In the meantime, plants had been built at Portland and Los Angeles. The plant at Los Angeles was replaced in 1930 by the present modern assembly plant at Long Beach, and a new plant was added to the West Coast group at Seattle. During the late war the plants at Seattle and Portland were sold to the Army.

Ford's assembly operations on the Coast are at present confined to the two branches at Long Beach and Richmond. But early in 1948 the new Lincoln-Mercury plant at Los Angeles will be placed in operation.

With a projected schedule of 850 units daily planned for West Coast production in 1948, Ford inaugurated the West Coast Purchasing Program early this year. Under this plan, Ford expects to expand its buying in California and the other Western states from some $22 million to $72 million by the end of 1948.

The program is already under way and many new sources are now operating on contracts recently awarded. Many additional contracts are in process of final negotiation.

Included in the list of 2,600 items available for purchase from West Coast manufacturers are castings, forgings, plastics, stampings, frames, mufflers, machined parts, and many miscellaneous items.

The program is administered, on the Coast, from my office in the new Lincoln-Mercury plant at Eastern and Slauson Avenues, in the central manufacturing district of Los Angeles. Here Elmer F. Dietrich, another veteran of Ford purchasing, and I both stand ready to explain the program and show prospective suppliers how they can take part in it.

Money-Saving Tricks

I have already mentioned that Ford is vitally concerned that its suppliers should make a profit. To insure their producing at a profit, we are willing and anxious to come into their plants and show them all the short-cut money-saving tricks we know.

Thus our work is not confined to placing contracts. Much time is spent in interviewing possible suppliers, explaining our requirements to them, visiting their plants, taking them to inspect mass-production methods in our own assembly plants. Prints and specifications are furnished, quantities outlined, delivery schedules explained.

Many suppliers have been eager to send representatives to Detroit. We have welcomed them. We have been glad to give them an opportunity to visit Ford manufacturing plants as well as the plants of Ford suppliers in that city. These visits have proved most advantageous in the exchange of ideas and knowledge of methods of production. Each of us stands to learn from the other. It is our thought, for example, that when we add West Coast suppliers to our list of vendors, we are not only making a saving over our shipped-in cost, but we are also adding to our potential assets in engineering and research.

Every supplier, in effect, delivers the results of his best engineering and research when he delivers his product. He figures these items in the price he asks. So for our part, we fully expect to solicit and use these additional brains in our future dealings with the supplier. And that is another reason why we want to help prospective suppliers by giving them the benefit of our own knowledge and experience.

Develop an Attitude

It was mentioned in the first article of this series that an "attitude" was the first and most important factor conditioning a supplier's participation in this program. After six months of development work on the Coast, we still believe this to be true.

A prospective supplier cannot hope to get into the automotive parts manufacturing business on a hand-to-mouth economy. He must be willing to share some of the risks as an investment in the future of this new West Coast business. Ford and all other motor car manufacturers are placing business at today's prices for delivery months in advance. What relation those prices may have with prices that prevail at the time of delivery, or what the price of the car may be months hence, has nothing to do with the operation. The risk involved is one that faces all manufacturers in these unsettled times.

But we are continuing to try to build up large-volume, low-cost production, because we believe a million saved is just as good as a million earned. Perhaps it is even better, for the million saved permits cuts in costs which bring about lower selling prices and more sales. More sales put more goods in the hands of consumers, and thus improve the standard of living and help to preserve what we call the American system of production.

Ford has come to the Coast to buy millions of dollars worth of parts and materials each year. It is hoped that these four articles have demonstrated to manufacturers that the West Coast Purchasing Program offers them the two-fold opportunity of building up their own operations on a stable basis and of making a real contribution to the advancement and strengthening of our national economy.

LICKING PRODUCTION BUGS BEFORE THEY BITE

It can be done with an Engineering Release Committee in which management and department heads confer with the engineer on new technical production data, to anticipate problems before drawings are released.

(This is the third in a series of articles by Mr. Thorpe dealing with production problems in the small plant.)

By C. LLOYD THORPE
Staff Executive, Dalmo Victor, San Carlos, Calif.
Instructor, School of Management Golden Gate College, San Francisco

IN THE small plant there is tremendous need for the complete coordination of the Management-engineering-production relationship.

It can be shown that many small plants who are setting up to make a real play for a market of considerable size have given little real thought to the role that technical problems will play in their organization. In other words, *technical accuracy as an absolute essential is not recognized as a routine management technique.*

Not too long ago a manufacturer "cracked the market" with a very salable product and, in a relatively short period of time, was doing rather well. In the inevitable course of things he saw where improvements could be made here and there, and because he was close to the manufacturing situation, he personally added these improvements from time to time. An engineering department was not necessary, in his opinion, because "the plant was too small."

There was a direct management-production relationship and it got along fine. Whatever changes came along were sketched out in the shop and were tested by placing them in units sold to customers close enough to the plant to allow reasonable observation of results. This was a good product, the improvements were good improvements, and in a space of a very few years the company had achieved an international reputation and the plant facilities had correspondingly expanded. So far, so good.

But the attrition that comes with time was taking its toll, and soon the older customers began to order parts replacements for the product. Parts that were supposed to be correct were sent out, but the customer wrote back "no." That stumped the order department, and in subsequent correspondence with the customer it appeared that there was no correlation between the old records (such as they were) of parts used and what the customer claimed he had.

So the manager (who now was no longer close to the manufacturing problem) had to round up those persons who were still present from the "old days" in order to get suggestions as to what might be in the field units. In a bull session it developed that any one of several possibilities existed. So the company finally was forced to write to the customer and explain that a drawing of the part would be required if it was not convenient to send the original piece itself.

As time went on, the company was deluged with this sort of thing until it finally decided to stock just about every version of every perishable item that any kind of record indicated had previously been made. This decision resulted in an extra inventory of over $250,000.

Now, I have spent this amount of time relating a single true incident because it portrays what can happen to many small plants that are treading paths equally dangerous, by ignoring the requirements of technical accuracy in the pre-production as well as the production stages.

Actually, many of these plants are in such bad shape in this regard that any large scale success might almost be their ruination. For they are selling products to customers and the nature of these products is that replacement of parts will be inevitable, yet absolutely no provision is being made to correlate design with serial number, to record historically the transition of changes in design. Or they are changing tools which make the parts and are making no provision to record the tool changes in relation to part changes. Or they are changing inspection equipment such as gauges and are not providing the historical correlation needed always to control quality of parts re-run from old designs.

They may be failing to record technical processes whereby certain parts of the product are created, may be neglecting the need for specifications to control sub-contractor's products, may be overlooking the need for blueprint control. Likewise there may be no recognition of the necessity to provide adequate part numbers or to maintain adequate parts lists. The long look toward the ultimate requirement of standards may not even be considered.

In short, the management may have lost sight of the fact that a management-production relationship in present-day manufacturing is not enough. On the contrary, management-*engineering*-production teamwork of the healthiest sort must truly exist.

Would the installation of an engineering department solve the problem? Not at all, unless it were so situated in the organizational structure that it would serve its correct purpose. There are just lots of

Questions the Engineering Release Committee Can Settle Before Production.

PURCHASING

1. Are the specifications for the part excessively restrictive as far as choice of vendor is concerned?
2. Could the specifications be changed to meet a trade standard instead of a specific manufacturer's specialty?
3. Will quantity buying be allowed beyond the normal requirements to take advantage of the market, or are subsequent design changes contemplated that would make such a move speculative?
4. If quantity buying is allowed can we take delivery of the total amount now; or are there deterioration problems that preclude this?

PLANNING

1. Could the part be partially completed by extrusion, forging or die-casting?
2. Will it go into production at once, or on a not-to-delay-production basis?
3. Will selection of raw material dimensions affect the machine time? Conversely, will the operations sequence affect the selection of material size?
4. If the part is being revised, will this affect the sequence of operations?

PRODUCTION

1. Will the tooling be affected?
2. Will this release correlate with the sub-assembly program?
3. Will inspection be on a line or station basis?
4. Are the tolerances generous enough to allow the use of high-speed machine tools?
5. Last time on a similar part the inspection department was not satisfied with the quality of the surface finish. Will the drawing specify a standard?

MANAGEMENT

1. Will promised dates given by the Sales Department be affected?
2. Does new equipment have to be obtained?
3. Has the part been tested according to conditions comparable to field service?
4. Will it affect interchangeability of models built within the last 24 months? This might cause dealer objection.

COST

1. Will this affect the part cost?
2. Can the inventory on hand be balanced out and used up?
3. Is the design considered stable enough to allow the start of a detailed cost analysis?

plants with engineering departments who still have considerable difficulty in maintaining the kind of technical accuracy that is adequate for the short-haul problems of current production and the long-haul problems of customer liaison. Then, what is the correct purpose of an engineering department?

Well, in his recent most excellent book "Engineering Organization and Methods" (McGraw-Hill 1947) James E. Thompson states that "analysis of the operation of an engineering department (of a concern engaged in the fabrication and assembly of parts) readily reveals that its basic functions are (1) design, (2) drafting, (3) liaison, (4) technical services, (5) general services, and (6) personnel." He also lists a seventh—tooling—as an "optional activity." In the small plant it very often is included.

The above pretentious analysis of the correct engineering functions is a far cry from what is actually going on in the organizations of small plant managers who are perfectly willing to spend great sums for making tools and for providing facilities for production, but who feel that surely there is no great problem in arranging for someone to "make the drawings."

This blind spot in not accepting the greater concept of engineering function requires that the strong light of education permeate areas of ignorance which tend to keep the engineer from enjoying his correct position in the organizational structure. The engineer never will achieve this status until the management has accepted the fact that technical accuracy is an absolute essential, and has integrated this acceptance into the working philosophy of the enterprise.

It is impossible to overemphasize this point. Many engineers with whom I have discussed the problem are genuinely bitter at the relatively minor role they are required to play in plants that are essentially technical in character. They point out that the management is not tapping any reasonable part of the engineers' potential. It is paradoxical that those plants wherein this potential is used the least are most often those that could use it the most.

This series of articles is being written primarily from the point-of-view of the production department, in an effort to suggest methods other than the tools of the trade that will facilitate optimum productivity in the small plant. The balance of this article will therefore be devoted to the requirements of technical accuracy in the general field known as production engineering.

Now, the basic thing in this is that the technical information required on the job is usually made up of drawings, parts lists and/or specifications. All of these are devices of communication that translate an original design into a decentralized set of instructions which, if they are correct and are properly followed, should allow for proper fabrication, and in addition, should provide other departments with adequate control information to perform their supplementary services.

It is only obvious, therefore, that in this area of production engineering the engineering department has the position of being a service department for the production department and secondarily, for the other departments, such as purchasing, planning and cost. This being so, the engineers' activities should be directed with that idea in mind.

To illustrate what is meant, let us consider one of the great prerequisites to a successful procedure for facilitating technical accuracy, which is a correct engineering drawing numbering system. This is important to the whole organization and a poor one will be costly.

(Continued on page 42)

Licking Production Problems

(Continued from page 41)

All too frequently, however, management entrusts to the engineers the task of establishing the numbering system because "after all, that is the department which will use it." Unfortunately, such an attitude is traditional, but it is pointing to a fallacy that should be underscored: engineering drawings are *made* by the engineering department but are *used* by all other departments.

This is not a minor point, it is a major one, for it shifts the emphasis of not only the numbering system, but the whole idea of drawing function, and it implies the necessity of editing the drawings from the point-of-view of the production department and of those other departments that serve it. This would also include similar editing of drawing size, of title block, of drawing notes, of change procedure and many other things that some engineers have considered to be their prerogatives.

Within the past year I observed a new product designed and made ready for production by an experienced engineer who apparently supervised a good design job, and then proceeded to assume the task of setting up a numbering system. Remembering a system he had previously encountered in a large plant (and one quite dissimilar to the one under consideration) and also having some ideas of his own, he set about to number the drawings and parts listed. Not once did he consult the other departments regarding how the drawing system would affect them.

In due course his task was completed and under static conditions the situation seemed under control. But when action started in pre-production and later on the production line, the whole thing bogged down. What was adequate to meet the requirements of the engineering department filing system could not stand the rigid test of a company-wide *function* and collapsed under the usual barrage of revisions, deletions, obsoletions and the like.

The traditional remote "ivory tower" position in which management often places the technical staff makes them particularly vulnerable to errors of commission in this regard.

Anyone who has had experience in plant management is aware of the traditional chip-on-the-shoulder attitude between engineering and production departments. While circumstances alter cases, still there is much to be said in favor of a production department that complains because "there is not enough information on the drawings" or because "the drawings are not clear."

Generally speaking, if the production department feels it cannot use the drawings as they stand, the engineering department, if it is to perform its true function of service, should change the drawings to meet the production department requirements. Yet many engineers "stand pat" on what is an untenable position: if it is adequate for the engineer, it should be adequate for everyone—not considering the correct engineering-production relationship at this point.

One other major criticism advanced by production departments in small plants is that the drawings are not accurate: it simply is not possible to make the parts like the drawings, as first received. The revision block on many drawings provides evidence to support this statement. Granted that some revisions will always have to be made it would appear that lack of adequate checking procedures can account for much of this. The result is that for all practical purposes the production department has the responsibility of locating the errors and this is an extremely frustrating situation to endure.

"Strong Right Arm"

There is a very important additional part that the Engineering Release Committee can play in the small plant: the management can get a quick meeting-of-the-minds and have a lot of decisions made regarding complex inter-departmental relationships at the same time that the routine business of the committee is being handled.

Most, but not all of the questions would be directed to the engineer. Naturally the answer prompts other logical questions that would have to be answered. Properly stimulated by management, this committee can, in the small plant, be management's "strong right arm."

If a department charged with the responsibility of producing cannot fully rely on the technical data, it cannot feel secure in its task and the engineering-production relationship will deteriorate. In spite of this, some engineers accept the situation calmly, somehow rationalizing it is in the nature of things.

What can management do to facilitate a more satisfactory relationship of the management - engineering - production team? After trying various methods I feel convinced that a very satisfactory approach is to be found in the establishing of an Engineering Release Committee consisting of the engineer in charge of drawing releases and key representatives of the production, planning, purchasing and cost departments (or their functional equivalents in the very small plant) as well as a production-conscious member of higher management. It would be the responsibility of this group to approve the release of all technical information directed toward production.

An engineer might question this arrangement as limiting the authority of his department. Not at all, if his authority is considered to be included in the administration of a department which embraces the engineering function outlined at the first part of this article.

The engineering department would proceed with its work as in any conventional method, instead of releasing the results of its work to all departments, it would pass them on to the suggested committee. After the technical data had received approval from this engineering release committee, issuance would officially be made. With the plantwide representation of this committee it would be possible to anticipate practically every problem that ordinarily would arise after the drawing release. Thus, this would actually save considerable time and trouble, for the committee would be concerned with *prevention* of difficulty, and the whole organization should run smoother if this committee carefully executed its designated job.

But beyond these considerations, the real advantage of this arrangement lies in the improvement that should result in the management-engineering-production relationship. It is an excellent technique for training the engineer toward a finer appreciation of the use to which other departments make of the data being issued by the engineering department. It should make any engineer considerably more effective, since he would be further enlightened even in his own field (as would all other participants) by the collective experience of the group.

He might even be amazed regarding the amount of technical know-how that resides in the mind of the purchasing agent or the shop superintendent. The close liaison of the engineering department with the shop is always desirable and the suggested committee would provide an enduring contact. Of equal importance to the rest of the group would be the gaining of a greater appreciation of the contribution that an adequate engineering department could provide.

Undoubtedly the production of any plant will be greatly helped, and the personnel in the department will be positively stimulated, if management provides a method whereby the production department has a voice at the time technical decisions are made which affect the productivity of the plant.

If at the same time the management has established the engineering department in the organization so that it not only has dignity and a clear understanding of its function, but also has been provided with an effective means of gaining a broad view of the company-wide problems and how the quality of the technical services affects them, there should be no question that the entire organization will have been positively affected, and roadblocks will have been removed on the road to really effective teamwork by management, engineering and production.

How Plant Policies Affect Materials Handling Costs

Thorough analysis of departmental operations will point the way to substantial savings . . .

Wherever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on the subject of materials handling.

By NEIL DRAKE
Western Manager
Drake, Startzman, Sheahan, Barclay, Inc. Physical Distribution and Materials Handling Consultants

A NEW trend of thought and attitude towards materials handling is emerging in wideawake Western management, an attitude which promises to recognize materials handling as a full-grown member of the company family, instead of a step-child.

The change is by no means universal as yet but it is perceptible among the small percentage of managements recognized as progressive leaders. These company officials have gradually become aware that materials handling and storage costs, representing 22 percent of the average company payroll alone, can be significantly reduced not only by modernization of equipment and methods but also by analyzing the factors in other departments which affect these costs.

They are finding that physical distribution costs all along the line can be lowered after the interdependence of departmental policies and procedures is recognized and examined from an over-all basis. Even those relatively few firms whose materials handling methods and equipment have resulted in an efficiency close to the optimum have been able to improve their operations generally by careful scrutiny of their handling requirements which originate in other departments.

The warehousing and storage policies of most organizations are part and parcel of the handling system. One is usually the result of the other. More rarely are the two planned on the basis of common requirements and common costs. Storage methods employed are often a determining factor in handling costs.

For example, a storage system based on item location in some arbitrary numerical or alphabetical sequence system can often double the travel time of workers in making shipment as well as double the storage space needed. In some cases, storage space has been sacrificed for handling efficiency, but in others analysis has shown that the cost of the space would outweigh the savings to be gained by more efficient handling.

It has been found that in many cases, excessive handling costs are a direct result of conditions existing in another branch of the company, but that it takes a plant-wide or frequently a company-wide survey to discover the keys to these potential savings. Where such surveys have been followed up, the result has been to give materials handling its proper place in the company organization.

Handling speed can often be improved by a reduction of storage pile height but the cost has generally been found too great except in special cases, such as selection lines of sample stocks established to speed up assembly of orders and shipment. Accessibility must often be weighed against the cost of additional aisle space. Such matters as turn-over and frequency rates and item space consumption factors can make or break a handling system. These are among the common problems of storage which must be considered when materials handling is planned.

Plant facilities have been generally accepted as being a primary influence on handling costs. Such factors as floor loads, ceiling heights, elevator capacities in multi-story buildings, location and phy-

Choosing Your Staff For Cost Cutting

Who should tackle the job of cutting handling costs?

In a plan for spotting wasteful practices in materials handling, and remedying them, Yale & Towne Manufacturing Co., in conjunction with Dr. V. S. Karanasz, Associate Professor of Industrial Management at the Wharton School, have listed the selection of a staff the first point in the three-point "Yale Plan."

"Management's first move should be to appoint a staff—a staff instructed to scrutinize handling operations and costs with the same care and zeal that has led to such remarkable development of the processing techniques used throughout American industry. And then the staff must be given the authority to do something about its findings!

"In most cases, the accounting department will be of little help — because cost accounting systems, generally, do not set out separately the costs incurred in lifting, moving, and setting down again. It is common practice in time studies to absorb handling costs as part of 'processing' cost, part of 'department operating' cost, or part of 'indirect labor payroll.'

"Sometimes the 'staff' is best built from engineering personnel, sometimes from treasury, sometimes from production—and sometimes from the outside (specialists engaged for the job or new men taken into the organization for the purpose).

"It is often wise to go further than a single man or two — to organize a committee or new department to tackle the job. But however the problem is approached, it is imperative to select men who are assiduous in detail, enthusiastic about the opportunity, and buttressed by authority."

sical characteristics of receiving, shipping and storage sections and the existence of built-in equipment, such as fixed conveyor systems, are recognized as limiting or restricting methods of materials handling.

Progressive management is now recognizing that there are other influences affecting materials handling costs just as important as storage policy and plant facilities.

Purchasing policy is a case in point. Delivery specifications on purchase orders, for example, may have an important effect on materials handling efficiency. In some industries, small, frequent deliveries of raw materials to manufacturing plants have reduced handling costs by the elimination of large shipments which sometimes congest truck pits or car sidings for days at a time.

This type of delivery is receiving the increasing attention of management both because it reduces the size of inventory and the storage space required. Many plants whose handling systems pivot around fork trucks and pallets have found that their suppliers are ready and willing to ship their orders on pallets, with a resultant reduction in manual handling on both ends.

Policy decisions regarding the general plan of distribution may have far-reaching effects on handling costs. When any changes in distribution methods are contemplated, good management is now analyzing what will happen to handling. The problem of branch house distribution or the use of jobbers and retail outlets can often be solved by examining the question of shipping and handling methods and costs. Then, too, the degree of service furnished by a shipping department to carriers can alter handling costs as much as 25 per cent—as, for instance, route loading of trucks as compared to indiscriminate order deliveries.

Sales policy has an important relation to materials handling costs in many organizations, both large and small. The present trend is to discourage small time-consuming orders on which the profit has evaporated by the time the shipping department turns them over to the carrier. When examined, unit handling and packing costs have been found too high to support a profit.

Another sales policy practice which has had a great effect on handling costs is the acceptance of orders requiring splitting of packages. Analysis has shown that in many instances customers can easily be educated to order in complete package quantities rather than in round figures. Customer education has, as a rule, been a non-recurring expense and far less than repeated packing costs.

Perhaps most important in the reduction of materials handling and storage costs has been sound planning based on sales estimates and planning of production. Many organizations have found it well worthwhile to plan storage facilities and materials handling systems at the time any additional production facilities are contemplated.

Flattening of production rates in relation to sales or consumption has reduced storage requirements. Such a condition hinges on sound inventory control. The elimination of sudden, unexpected overloads on the materials handling department, which have resulted from long production runs, which use up valuable storage space, has resulted in handling and

• This detailed materials handling analysis, breaking down each operation and cost, was developed by Westinghouse Electric Corp.

	MATERIAL CHARACTERISTICS				MOVE CHARACTERISTICS							
LINE	NAME & DESCRIPTION (DESCRIBE IF WET, CRATED, GRANULAR, COMBUSTIBLE, CORROSIVE, FRAGILE, ETC.	SIZE	WEIGHT	DESCRIBE CONDITION AND POSITION OF MATERIAL PRIOR TO MOVE	FROM	TO	DISTANCE	QUANTITY PER MOVE	FREQUENCY	QUANTITY YEARLY	INSP-ECTED	PAY COUNT
1												
2	COVERS	14½" × 20½"		TRANSFER TO ROLLER CONV.	15	15	50'	1				
3				ROLLER CONV.	15	20	50'	–				
4				LIFT RACKS TO SKID	20	20	10'	1				
5				MOVE SKID TO STORE ROOM	20	#12 YARD	175'	1				
6				UNLOAD RACK FROM SKID	#12 YARD	"	100'	1				
7				LOAD RACK TO SKID	"	"	10	1				
8				TRANSPORT SKID LOAD	"	D-30	1250'	1				
9				RETURN EMPTY RACKS	D-30	20	1435'	1				
10				RETURN RACK TO WORK STA	20	15	70	1				
11												
12												
13	COST OF OPERATING INDUSTRIAL TRUCKS (LESS OPERATOR'S TIME)											
14	REFER TO LINE 5	125591	÷ 300 = 419 TRIPS @ 0.23 HRS.							= 95.37 HRS/YR. @ 0.37	=	$ 34 28
15	" " " 8	125591	÷ 300 = 419	" " 0.23 HRS.						= 95.37 HRS/YR. @ 0.37	=	34 28
16	" " " 9	125591	÷ 300 = 419	" " 0.23 HRS.						= 95.37 HRS/YR. @ 0.37	=	34 28
17				TOTAL COST OF OPERATING TRUCKS, 1945								$ 102 84
18												
19	COST OF OPERATING OVERHEAD CRANES (NOT INCLUDING LABOR)											
20	REFER TO LINE 2	2500	LIFTS	× .088 HRS/LIFT × .26 *	= 57.20							
21	" " " 4	2500	"	× .088 " × .26 *	= 57.20							
22	" " " 6, 7	2500	"	× .088 " × .42 × 2 ⑩	= 185.00							
23	" " " 10	2500	"	× .088 " × .12 ⑪	= 26.40							
24				TOTAL CRANE COST	325.80							
25												
26	NOTE: FOR PURPOSE OF MATERIALS HANDLING STUDY ALL TANKS											
27	COVER CONSIDERED ROUND BUSHING TYPE											
28												
29												
30	* HOURLY COST FOR 5 TON CRANE											
31	⑩ " " " " 10 TON "											
32	⑪ " " " " 8 TON "											
33												

storage cost reductions frequently much greater than the economies of long-run production.

Inadequate inventory control systems have been found to add thousands of dollars in annual materials handling costs through the creation of back orders and the consequent doubling of orders which must be handled by the shipping department. Thousands of man hours of labor have been wasted in searching warehouses for items which are not there—the result of inaccurate inventory records.

While materials handling costs are generally known and carefully watched in the receiving, storage and shipping departments, there is another major field of materials handling — production — where costs are generally buried in production figures. Materials handling cost between production processes is receiving increasing attention which pays off in better, more efficient operation.

The effect of production layout and equipment on materials handling cost has been revealed as astounding and in direct proportion to the degree of adherence to sound flow principles. Modernization of handling methods and equipment planned in conjunction with production facilities can and has resulted in more continuous machine production. Sizes and location of work banks resulting from varying production rates in different processings can be closely regulated by well planned materials handling, resulting in many cases in lower costs for both production and handling.

Further, many firms have found that the exercise of a little more control in the production department in maintaining item segregation has paid off in reduced unit handling costs by elimination of a sorting operation in the warehouse or shipping department.

Thorough analysis has revealed that often a large part of the shipping department's work can be done by machine in the office as part of another operation. Such jobs as item listing by warehouse location and the printing of shipping documents are common examples.

Sound labor policies, especially the establishment of work standards, are doing as much as any other single factor to control handling costs in many plants. Establishment of fair standards of work and acceptance by employees are indispensable to efficient handling. Without them, the best conceived system will not get maximum results.

The personnel policies of many organizations have cost thousands of dollars in hidden extra handling costs. Too often when the proper importance of the materials handling and storage department has not been recognized, the personnel mistakes of the entire organization are passed on to it as a safe haven until retirement can make a correction. Obviously, the morale and efficiency of such a department can be no better than its personnel, particularly its supervision.

Western management is discovering that before real efficiency can be achieved in the materials handling department, definite responsibility for it must be lodged high enough in the organization to be on a level comparable to the sales and production departments. It has been found too that the responsibility must carry with it the authority to coordinate the materials handling system with other company operations and the consideration by management on the same basis as sales and production.

EXISTING OR PROPOSED METHOD (CROSS OUT ONE)

CONTAINER USED AND QUANTITY IN EACH	HANDLING EQUIPMENT USED OR NEEDED	CONTAINER DISPOSITION: STAY WITH MAT'L	CONTAINER DISPOSITION: OTHER (DESCRIBE)	CONTAINER DISPOSITION: LAYDOWN SPACE REQ.	UNIT LABOR TIME (HOURS): LOAD	TRANSPORT	UNLOAD	TOTAL	NO. MEN REQ'D	HANDLING LABOR COST PER UNIT	REMARKS: WAITING TIME CYCLE TIME — REP. No PIECES	REMARKS: DIRECT LABOR COST
										* 90¢		
RACK - 50 PCS.	OVERHEAD CRANE					.088		.176	2	.1585	50	.00316
" " "	ROLLER CONV.					OPERATOR'S TIME		.176	—	—	—	—
" " "	6 RACKS PER SKID SKID - OVERHEAD CRANE				.088 EA. .528			1.056	2	.9504	300	.00316
" " "	6 RACKS PER SKID SKID - ELEC. TRUCK					.230		.230	1	.2070	300	.00069
" " "	" OVERHEAD CRANE						.088 EA. .528	1.056	2	.9504	300	.00316
" " "	" " "				.088 EA. .528			1.056	2	.9504	300	.00316
" " "	" " "					.230		.230	1	.2070	300	.00069
	" ELEC. TRUCK					.230		.230	1	.2070	300	.00069
RACK - 50 PCS.	OVERHEAD CRANE					.088		.176	2	.1584	50	.00316
						TOTAL UNIT COST DIRECT LABOR						.01787

TOTAL DIRECT LABOR COST, 1945 = 125,591 × $.01787 = $2,244.31
TOTAL CRANE COST (TRAM LINE 24) 925.80
TOTAL TRUCK COST (TRAM LINE 17) 102.84
TOTAL 1945 COST OF HANDLING COVERS - EXISTING METHOD $2,672.95

EXISTING METHOD

NEW FORECAST, DIRECT LABOR COST, BASED UPON 362,400 COVERS AND $1.08 LABOR RATE: $2,244.31 (FROM LINE 12) × $\frac{1.08}{.90}$ × $\frac{362,400}{125,591}$ = $7,756.12

CRANE OPERATING COST: $\frac{362,400}{125,591}$ × 325.80 = 940.00

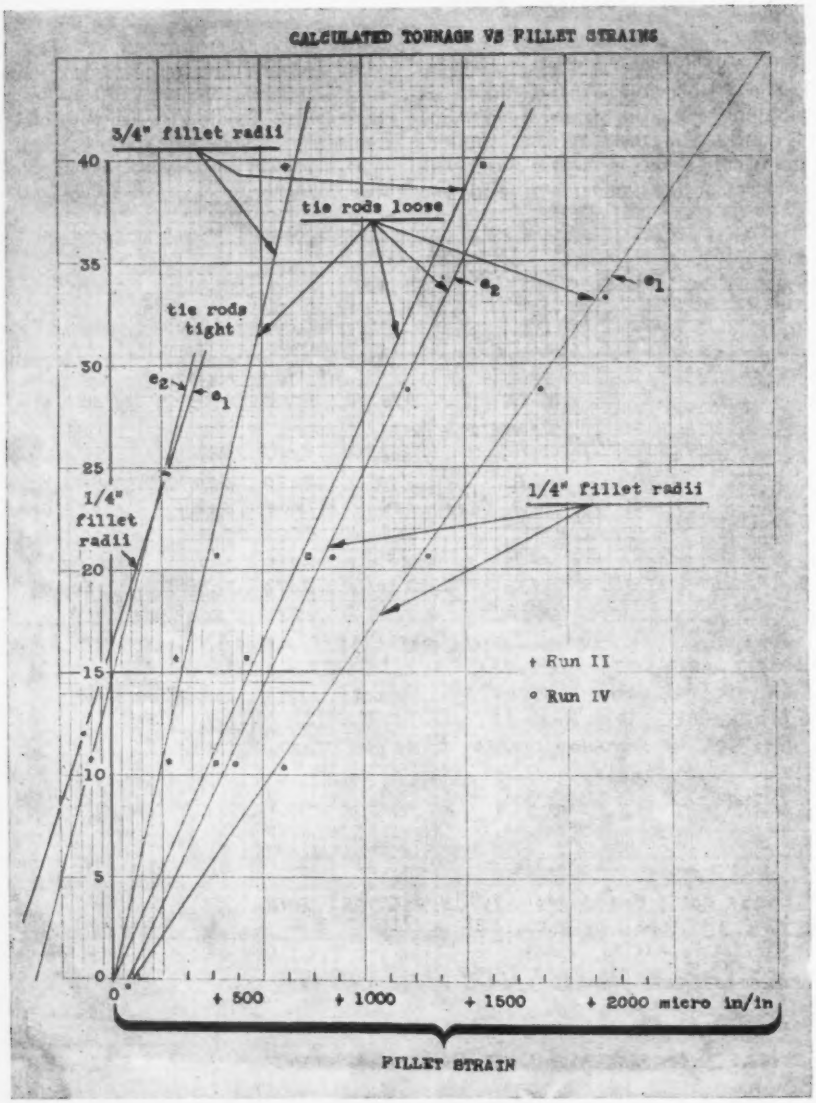
NEW FORECAST, TRUCK OPERATING COST BASED UPON 362,400 COVERS
$102.84 (FROM LINE 13) × $\frac{362,400}{125,591}$ = 296.12

COST OF HANDLING TANK COVERS (NEW FORECAST) USING EXISTING METHOD $8,992.24

* ASSUMED LABOR RATE

NEW PRODUCTION TECHNIQUES

Applying strain gage Tests to punch presses; Dry ice for reefer cars



• Above, calculated tonnage plotted against fillet strain emphasizing effect of increased fillet radii with tie rods loose. Calculated tonnage of the ¼-inch fillet radii plotted against fillet strain is shown with tie rods loose and tie rods tight. Opposite page, strain gages and rosettes are shown cemented to the frame of a 30-ton punch press frame and connected to the strain gage recorder during tests with static loads.

ELECTRIC strain gage tests to solve the problem of additional strength in a cast punch press with the same weight have been applied by Diamond Machine Tool Company of Los Angeles, reportedly for the first time in the history of punch press manufacturing and with a reduction of 38 per cent in frame stress.

Recent trends in punch press manufacturing have been to distribute the metal through the frame to equalize the stress resulting from such things as 24-hour a day use in many plants and other abuses which result in costly breakdowns. Varying operating conditions and loads have made it difficult, however, to locate with accuracy the stresses, strains and twists in every section of the frame, despite the fact that punch presses always have been designed to mathematical and theoretical formulae.

Manufacturers of punch presses compensated for this incorrect theoretical designing by substituting with unnecessary weight. When a failure occurred in a section of the press the logical result was for the manufacturer to put more iron in that section.

During the various tests, made by Given Brewer, consulting engineer of Laguna Beach, California, who has devoted considerable attention to strain analysis, 67 strain gages were applied to many different locations on the press, from which distribution of stress was recorded under various loads. The platen fillet area was discovered as the weakest section of a C-type frame. Tests results on this fillet area are of greatest importance.

What is electric strain gage testing? It is the method of electrically measuring the shortening or lengthening of the part being tested. The strain gage, which is several loops of resistance wire cemented to the part being tested, and rosettes, which compromise three strain gages in a triangular manner to measure strain in all directions, were cemented to various parts of the punch press frame. These gages were then connected by suitable

wiring to an automatic 48 point SR-4 strain recorder.

A resistance wire cemented to a machine part stretches the same as a machine part does under stress. As it lengthens, it decreases in cross section and increases in electrical resistance. A Wheatstone Bridge galvanometer calibrated to millionths of an inch indicates these minute changes in resistance. It reads the strain directly. Secondary stresses are determined by arranging the strain gages in a pattern of an equilateral triangle.

After a number of strain gages and strain rosettes were cemented to the frame, tie rods, and cross members of a Diamond 30-ton press, they were then connected to the strain recorder. A 50-ton mechanical jack was placed on the press bed engaging the ram so that the jack would load the press frame in a manner similar to that resulting from actual operation. The jack tonnage was determined from strain gages affixed to opposite sides of the ball screw connecting rod.

Strain records were made at various jack tonnages, some with the tie rods tight and others with the rods loose. Two dial gages on either side of the jack on the ram centerline were used to observe opening of the press throat as a function to tonnage. To check the accuracy of the strain gages used on this static test, the ball screw connecting rod was removed and taken to the Triplett and Barton Laboratories where a check calibration was made on a 100,000-pound Tate-Emery testing machine.

What was discovered by the first static test on the frame? At 30 tons punch load the bending stresses through the press were in general around 4,500 pounds per square inch. Stresses at the gibway fillets were 9,400 psi. This is still below the endurance limit of semi-steel casting, which is approximately 15,000 psi, but since the bending stresses throughout the press were in general around 4,500 psi, the design was changed, eliminating the ½-inch gibway fillet radii and substituting with smooth eliptical curves, which are stronger than the radii.

It was revealed that the ¼-inch radii of the platen fillets at the juncture of the side frames and bed were subjected to a very high stress of 23,600 psi. As a consequence of this discovery, the platen fillets were enlarged to ¾-inch radii. The frame was put through another static test which proved that the enlarged platen fillets reduced the stress concentration factor at this platen fillet area. At 30 tons punch load the enlargement of the platen fillet radii from ¼ inch to ¾ inch reduced the stress at this point from 23,600 psi to 14,050 psi. This represents a stress reduction of 38 per cent.

It was also proved that the enlargement of the platen fillets did not affect the rigidity of the press. Incredible as it may seem, static testing with electric strain gages proved that by removing some metal at the platen fillets the frame was strengthened.

Another discovery by static testing was the effect of the tie rods on the stress distribution, minimizing the stress on all fillets. The use of the tie rods reduces this fillet stress 80 per cent and stiffens the frame 74 per cent. Also, all punch press C-type frames have a rotating deflection (springing open), therefore, the use of tie rods on the Diamond 30-ton press frames reduces this rotation from 0.135 degrees to 0.027 degrees at 30-ton load, which increases the die life.

Mr. Brewer's report emphasizes that the use of tie rods is very desirable on all punch presses to reduce the rotating deflection. The stress reduction obtained from larger platen fillets and proper distribution of metal throughout the frame gives the Diamond punch press frame, with the minimum of weight, an increase in breaking strength from 108 to 166 tons, which is a safety factor of 533 per cent.

Dry Ice Cooling For Reefer Cars

Cooling of refrigerator cars by attaching dry ice compartments to car ceilings has been under study on Union Pacific for some time. The experiments, which have centered chiefly around the transportation of frozen foods, culminate more than 10 years of testing dry ice refrigeration by Pacific Fruit Express, which is jointly owned by Union Pacific and Southern Pacific railroads.

PFE experimental cars are equipped with metal compartments affixed to the ceilings into which dry ice is packed. The compartments are highly insulated on the sides and ceilings to direct the refrigeration downward through the load below.

This method is a deviation from experiments being undertaken by other railroads which feature dry ice in a steel tank located in one end of a refrigerator car in the space normally used for the water ice bunker. The dry ice cools a secondary liquid refrigerant which is circulated through coils along the car ceiling.

A new mine trailing cable, devised by two Salt Lake City engineers, provides a new protection on this source of explosive sparks. United States Rubber Company engineers demonstrated the new cable recently, featuring a copper braid over the conductor that traps current leakage and prevents explosions.

The trailing cable carries power to drills, loaders, and cutting machines, and when it is broken by accident the resulting current leakage may build up an arc and cause an explosion.

The partial copper braid over the "hot conductor" catches the incipient power leakage and routes it through a sensitive circuit breaker that cuts off the power before arcing can occur.

Rig-a-Jig-Jig Away We Go

By assembling a jig on the spot and using the turntable as a lathe, a machinist was able to repair the Denver and Rio Grande Western Railroad's turntable at Minturn, Colorado, without interrupting traffic.

When the eight wheels which support the 120-foot turntable were found badly in need of repairs, it was supposed necessary to remove the wheels and send them to the shop to be turned on lathes. But machinist Frank Robberson decided he could build a special jig which would hold a cutting tool in place above the wheels, thus do the necessary work while the turntable was making its daily rounds.

He used the turntable itself as a lathe so the wheels could be turned and trued while doing their work. It took him about 45 minutes to set the machine in place. Each wheel was machined in 21 minutes, with 20 revolutions a minute by the wheels and 9 2/5 revolutions of the turntable.

Traffic was not delayed and the work was done as thoroughly as though the wheels had been removed. Master mechanic Paul Giesking expects to use the jig in repairing other turntables on the road.

Production Cost Controls Save Small Plant's Bacon

By EDWARDS R. FISH, JR.
Industrial Engineer, Seattle, Wash.

MANUFACTURERS of extremely modest proportions as concerns working force, size of plant, and gross income can successfully adopt accurate and complete controls over plant performance and production, using methods commonly considered adaptable only to large companies.

With the proper approach and background such a program, involving stop-watch time studies, can be initiated and maintained with the complete support of shop employees. Proof of these statements lies in the experience of the Evans Manufacturing Company of Seattle.

Evans produces a variety of fishing tackle accessories, including in its output 19 items manufactured in a total of 75 different sizes. The working force of 20 employees performs more than 80 separate operations on punch presses, wire formers, hand wire benders, and brazing benches. Until recently Evans' owner, K. K. Smith, had no way to compute product costs until the production of any given lot had been entirely completed. Even then cost computing was intermittent because no standard procedure was used.

The office clerk computed total costs, as time allowed, from daily time cards, the packer's count of completed goods, and material withdrawal memorandums. It was impossible to determine the cost of any particular operation, or the production of any individual operator. In spite of the office clerk's sincere efforts, the lack of adequate simple cost records resulted in one instance of the sale of an order for $275 less than the cost of production. At that time it became obvious that a more rapid and complete method of checking operating costs was needed at once.

The owner then called in the consulting engineer to develop a procedure which would provide up-to-date total costs on each production run. At the same time the engineer established means for recording the cost of each operation in relation to an accurate standard, a continuous record of work in process, and a means of measuring each operator's performance.

After assigning operation numbers to identify each item, size, and operation, stop-watch time studies were made to fix a standard production rate for each operation. The majority of these studies were completed in about a month, but new standards will continue to be set from time to time, as operations are changed and new items introduced.

Before starting the time studies, personal discussions were held with the union shop committee and with all of the employees to acquaint them with the reasons for use of the stop watch and the methods by which standards were to be calculated. No standards were set until complete agreement had been reached with the employees, and thereafter no resistance was met to use of the time study procedure. The fact that personal relations between the owner and the employees have always been excellent, and that he enjoys their confidence in his sincerity, caused quick acceptance of the methods used by the engineer.

Operation of the cost control system involves only four simple forms: (1) a shop order; (2) a daily time ticket; (3) a product cost ledger sheet; and (4) a plant and employee performance sheet. Examples of the last three forms are shown in the accompanying illustrations. The shop order is a stock form. It is prepared in the office, and gives the shop all the necessary information to proceed with a job, such as part number and name, quantity required, type and quantity of raw material, and date due.

Start and stop time for each operation is stamped on the time ticket by the operator, who also enters part and operation number data and the count of finished pieces. The latter is obtained from a mechanical counter attached to each machine. The office clerk picks up the time tickets each day, and in a few minutes completes the time card information.

Unit standard is taken from the time study standards table and extended by the quantity produced to give the total standard hours. Elapsed time is a simple subtraction of start from stop times. The ratio

DAILY TIME TICKET

EMPLOYEE No. 10 DATE 6-11 1947

JOB NO.	PART & OPER. NO. SIZE	ITEM	OPER.	NO. UNITS	UNIT STD.	STD. HRS.		ACT. HRS.	TIME
							OUT		11 30
582	3	6	2	1200	.0020	2.4	IN	3½	7 58
							OUT		4 27
425	2	1	3	5000	.0008	4.0	IN	4½	12 02
							OUT		
							IN		
							OUT		
							IN		
							OUT		
							IN		
					TOTALS	6.4		8.0	

PERF. = STD. / ACT. = 80 %

JOB NO. 582 — PRODUCT COST LEDGER — PART NO. 6 — PART NAME #3 Swivels — OPERATION NO. 2

LABOR						MATERIAL				OVERHEAD
DATE	MAN NO	NO. UNITS	STD. HRS.	ACT. HRS.	ACT. COST	SIZE	ITEM	AMOUNT	COST	
6-11	10	1200	24	3.5	$3.50	3	Pins	90#	$90.00	
						Return to stock	✓	5#	5.00	$0.62/hr.
										3.5 × 0.62 = $2.17
TOTALS		1200	2.4.	3.5	$3.50			TOTAL	$85.00	TOTAL $2.17

OPERATION PERF. = STD. HRS. / ACT. HRS. = 80%

OPERATION COST PER UNIT = (LABOR + MAT. + O.H.) / NO. UNITS = $90.67 / 1200 = $0.076

TOTAL COST OF ALL OPERATIONS ON THIS PART =

of these two is the operator's individual performance for the day.

A produce cost ledger sheet is kept for each operation on each item. The sheets are headed and inserted in the ledger binder when the shop order is issued. Raw material to be used is posted at the same time. As work progresses and material is actually drawn for the job, a material memorandum sent to the office permits posting of actual usage, thus providing an immediate check on overdraft of material.

All data for the labor section of the sheet is taken from the daily time tickets and posted each day, the only extension being required is that of multiplying actual hours by the hourly rate to obtain the actual cost. Completion of a production run is indicated by return of the shop order to the office with the count of pieces actually packed entered on it.

Ledger sheets are then pulled, and the totals run to permit calculation of operation performance and unit operation cost. Overhead rates used in the cost calculations are expressed as a percent of direct labor dollars and are derived from the company's financial records.

The completed quantity, as noted on the shop order by the packer, is used as a check against the totaled units which have been posted in the product cost ledger from the daily time tickets. Discrepancies in most cases represent scrap production, as well as the accuracy of operators in entering their production count.

Whenever the question arises as to what the cost of any item or operation is going to be, cost computations can be made at any point before the completion of the production run, since standard and actual time data is available the day after the operation is performed. Many times portions of a production run will be packed and shipped one or more times before the full shop order quantity has been produced. In these cases a packing memorandum is sent to the office to indicate the number completed, the date, and the amount of raw material represented. This information is posted to each operation sheet in the product cost ledger so that the operations sheets show work in process at all times.

The plant and employee performance record is a valuable byproduct of the cost system because it helps locate the causes of high costs, and regularly tells the owner of trends in the plant's productivity. Standard hours and actual hours totals from each employee's daily time ticket are transferred to the plant and employee performance sheet daily. Calculation of individual and total plant performance in re-

(Continued on page 55)

PLANT AND EMPLOYEE PERFORMANCE

FOR WEEK OF June 9–13

MAN NO.		MON.	TUES.	WED.	THURS.	FRI.	SAT.	TOTALS	% PERF.	COMMENTS
10	STD.	7.3	6.8	6.4	7.4	7.2		35.1		
	ACT.	8.0	7.9	8.0	8.0	7.5		39.4	89.2	
	STD.									
	ACT.									
	STD.									
	ACT.									

PLANT PERF. = STD. / ACT. = _____ × 100 = _____ %

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

10% Excise Tax On Manufacturers Looms

California's Gearhart authors bill which promises fight over repeal of retail tax

By ARNOLD KRUCKMAN
Washington D. C. Editor of
Western Industry

WASHINGTON, D. C. — Congressman Bertrand W. Gearhart, whom you know better in the West as "Bud" Gearhart, is the author of the bill which will be one of the chief topics of discussions about tax revision in the next session of Congress.

The proposed law is of special interest to the people responsible for the economy of the West, because "Bud" is one of the most important men in the Congress, and because it touches every aspect of business and life in the West as well as in the rest of the country. This bill, H.R. 4352, when enacted, will impose an excise tax of 10 per cent upon all manufacturers, with a few exceptions, and will repeal virtually all excise taxes on retail sales surviving from the war. The bill is taken seriously, as a subject of top importance, in the Capital, because of "Bud's" influential position in the councils of the Republican party.

He is one of the most powerful members of the House Ways and Means Committee and is the member of the Policy Committee (from the West) whose point of view has a dominant significance. While Congressman Welch of the San Francisco Bay region is the titular head of the California delegation (by virtue of his Republican seniority), "Bud" Gearhart really is the substance of the leadership.

They will tell you here that Mr. Welch should surrender even the ostensible leadership because he is Republican chiefly in name; his sympathies and his actions support the liberals of the New Deal persuasion. Moreover, he lacks the aggressive and active qualities of leadership needed to inspire confidence in the majority element of the large California delegation, one of the most important state units in the Congress.

There is every indication that in the near future the issue of the leadership of the delegation will be a serious and live subject of consideration among the members from California.

Congressman John Phillips, Republican, who represents, Imperial, Orange, and Riverside counties, in southern California, and who has been in the capital six years, has a following. Phillips is an adroit and careful politician, is easy and pleasing in public appearances, and has the smooth finish of a man from the schools, although he disclaims a professional academic background. As against the Native Son background of "Bud" Gearhart, Phillips is a transplanted Pennsylvanian who settled in California a decade ago. He is a product of Quaker schools, and presumably is a Quaker.

The topic of the leadership of the California delegation should be of active interest not only to Californians but to all business people of the West. The California delegation is the largest and most powerful in the Congress with the exception of the delegations from New York, Pennsylvania, and Illinois; and, it is interesting to note, the Illinois delegation numbers only two more members than the delegation of 23 members from California. The greater the unity of the California delegation, the greater will be the respect of the rest of the Congress for the voice that speaks from the lip of the Pacific slope.

Gearhart's Tax Bill

Gearhart's tax bill will place an excise on all fully-processed goods, at the manufacturer's level, except food. The present excises on tobacco, distilled spirits, wines, beer, and electrical energy will remain in effect. Gasoline taxes will be increased from 1.5c per gallon to 2c; levy on importers would be 5c per pound of tea; and importers of coffee would pay 2c per pound.

The proposed law will give the Federal Government 47.9% of all its revenues from income taxes, and 52.1% from excises, estates, gifts, customs, and miscellaneous sources. The capital gains tax would be reduced from 25% to 20%. Home owners would be allowed a tax reduction for depreciation of their dwellings. Present income taxes would be lowered from the existing range of 19% to 86.5%, to 14% but no higher than 50%. Corporate income taxes would be lowered from 32.7% to 22.4%.

Gearhart points out that at present the Government raises over 80% of its total revenue by tax levies on corporate and personal sources, while this 80% is exacted solely from 40% of the sources of our national income. Under existing law, more than $105,000,000,000 of the national income escapes all taxes through exemptions, exclusions, deductions, and evasions.

Fight Anticipated

The fight over taxation will be one of the noisiest issues of debate in the next session of Congress. Mail ariving here indicates that the country at large blames Congress for the debacle in the recent tax fight rather than the President. Senator Taft, and other leaders of the Republican majority, apparently have decided the most popular manner of reducing taxes is to remove excises at the retail level. The elimination, incidentally, will include excises on clothing and electric light bulbs.

These retail excises at all levels and for anything has been very exasperating to the voters who are beyond the usual manifestation of irritation. This reporter recently had occasion to touch briefly at various principal Eastern cities where excises in the so-called form of sales taxes were collected for municipalities, states and federal treasuries. There was no remote doubt left in the observer's mind that the consumer as well as the distrib-

(Continued on page 52)

What things do you think of when we say "aluminum"?

When asked that question in a recent survey, 92% of the people interviewed replied: "Pots and pans."

On the other hand, *less than* 4% mentioned such aluminum "naturals" as roofing and siding, heating and ventilating equipment, gutters and down-spouts, busses, garage doors, garden tools, home-trailers.

What does this mean?

Simply that while aluminum has proved itself the successor of other metals in hundreds of applications . . . public awareness has largely remained at the pot-and-pan level.

And without awareness, how can there be *demand?*

To increase consumer awareness of aluminum products . . . to interpret them in terms of *better living* and thus create demand . . . is the objective of the above advertisement and the many that will follow.

They will appear, in full color, in such top-read magazines as Saturday Evening Post, Newsweek, Collier's, Time, Sunset, reaching a total audience of over 30 million every month! Such advertising, we believe, is bound to influence the buying habits of a big share of this audience.

Which will mean a lot more business for the makers of aluminum products.

Ready to serve you—*today*...

Kaiser Aluminum

a Permanente Metals product

DISTRIBUTED BY PERMANENTE PRODUCTS COMPANY, KAISER BLDG., OAKLAND, CALIFORNIA . . . WITH OFFICES IN:
Seattle, Wash. Oakland, Calif. Los Angeles, Calif. Dallas, Texas Wichita, Kan. Kansas City, Mo. St. Louis, Mo. Atlanta, Ga. Minneapolis, Minn. Milwaukee, Wis. Chicago, Ill. Cincinnati, Ohio Cleveland, Ohio Detroit, Mich. Boston, Mass. Hartford, Conn. Buffalo, N. Y. New York City, N. Y. Philadelphia, Penn. Washington, D. C.

Western Economy and Tax Bill

(Continued from page 50)

utor regarded the system of collection as a nuisance.

It is reported that Governor Dewey will urge upon the country the thought that excises or sales taxes should be the sole right of the states, for the bulk of their revenue, while income taxes should be the major source of income to support the federal government. Dewey, obviously, wishes to eliminate the present duplication, multiplication, of excises, on one hand, and of the income taxes, on the other. The multiple gouging of the citizens is regarded as unfair, and the operation of the system as uneconomical.

Personal Income Taxes Reduced

Gearhart points out that his bill will reduce personal income taxes $9,700,000,000, and raise $5,500,000,000 new revenues by the 10 per cent manufacturers' excises. At the same time it will drop 19,000,000 low-income persons from the federal tax rolls by increased exemptions.

"From my studies and those of others who specialize in fiscal matters, I have not the slightest doubt we can cut taxes $5,500,000,000, and also have a substantial amount left for public debt retirement," said Gearhart, recently. "My bill will notably increase the take-home income of the farmer, the laborer, and the white collar worker. The exemption would be $1,000 for single persons, $2,000 for heads of families, and the $500 allowance for dependents would be continued. Under existing law, a married person with one dependent pays an income tax when his income is $1,700. Under the proposed law he would not pay an income tax until his income exceeded $2,800. A married man with two dependents will not be liable until his income reaches $3,400 as compared with $2,200 under existing law.

"The great majority of the farmers and wage earners would be relieved of the necessity of filing income tax returns. Husbands and wives living in non-community property states will be allowed the same benefits for federal income tax purposes as are allowed under the community tax system which prevails only in a few states. To remove the inequity of collecting estate tax from men dying in the military service during World War II, the new law will exempt the estates of such men from additional federal estate tax.

"I believe federal taxation, to be sound, should be garnered from going business and services as they occur. Taxes, to be sound, should be easy to administer, with a minimum of loopholes for disputes. The manufacturers' excise tax is the simplest and most efficient form of taxation now available to the federal government. It is as easy to administer as local levies of real estate. I want to emphasize, under H.R. 4352, there will be no excise taxes on food, or housing, or transportation to and from work. These items comprise a large part of the cost of living for the average person.

"I think, in many cases, the excise tax will be absorbed by the manufacturer, wholesaler, or retailer, with expanded business that will result from such levy in lieu of existing deterrents.

"I think, moreover, removal of the oppressive rates under the income tax will result in the free flow of risk capital, encourage management incentive, and materially aid production."

The Gearhart bill repeals tax on transportation of property; repeals all retail excises on furs, jewelry, cosmetics, and luggage. The tax rate on local telephone service will be reduced from 15% to 3%; the tax on long distance calls, telegraph tolls, radio, cable facilities, leased wires, etc., will be reduced from 25% to 5%; and on wire and equipment services from 8% to 2%. The tax on lease of safe deposit boxes will drop from 20% to 10%.

Club dues and initiation fees will be taxed 10 per cent rather than 15 per cent; the following manufacturers' excises will be entirely repealed: on tires, tubes; on auto trucks and buses; passenger autos and motorcycles; lubricating oils, auto parts, and accessories; electric, gas, and oil appliances; radio receiving sets, phonographs, and musical instruments; mechanical refrigerators, etc.; business and store machines; photographic apparatus; matches; sporting goods; firearms, shells, pistols, and revolvers. The excises on these articles now cost the nation $1,087,300,000.

The new surtax schedule would start at 11 per cent on the first $2,000 or surtax net income, and a top tax rate of 47 per cent on surtax net income in excess of $1,000,000. The normal tax rate would be 3 per cent. Net tax loss to the Treasury would be $5,455,400,000.

Alaska Survey Set For September

The Senate Small Business subcommittee, charged with making effective the law approved by the President early in August, which enables the government to sell the timber in the national forests of Alaska, will make its survey on the spot early in September. The committee is headed by Senator Capehart, Republican, Indiana, and includes Senator Ed Martin of Pennsylvania; Senators Cain, Washington; Murray, Montana, and Ellender, Louisiana.

Under the new law the Forest Service may sell the timber and settle the long controversy over the rights of the private interests (i.e., the Indians' title to the profits derived from the timber), by setting up the machinery for establishing a fund to be placed in escrow which will be used to settle all native claims after proper scrutiny. The committee will make a very thorough survey of the whole program of the utilization of the timber resources as swiftly as possible.

It will go into the problem of water resources, the building of dams, and the production of hydro-electric energy, in order that mills may be put into operation to process the lumber and to make pulp for newsprint. The pulp mills, naturally, are expected to be operated by private interests. It is likely the committee also will survey the timber resources along the Alaska Hihgway. It is reported here the stand of timber along the Alaska Highway is ideal for the purpose of producing pulp. The thought is afoot that appropriate arrangements can be made for the use of the timber with the Canadian government.

Senator Martin Led Campaign

Senator Ed Martin, several times governor of Pennsylvania, and a major general of the U. S. Army during the war, has been one of the most insistent campaigners in the Congress to secure the means of the production of a great volume of domestic pulp for newsprint. Senator Martin is a business man of great talents, and is regarded here as an involuntary dark horse for the Presidential nomination when the Republican convention finally finds itself at stalemate, which is regarded as certain.

Martin found, on investigation, that we must rely upon foreign sources, mainly Scandinavia, for over 80 per cent of our pulp for newsprint. Obviously, in the event of any militant disturbance of the peace in Europe, or elsewhere, our access to Scandinavian supplies will early be cut to a trickle, or possibly entirely cut off. The timber of Alaska is regarded as the chief resource for the production of pulp. It is proposed to rush the preparation of the corollary plans for the development of water-power resources as fast as it is humanly possible.

All this clearly spells great potentials of economic development and activity for Alaska, and for the Pacific Northwest. It is bound to mean much to Seattle and Portland; but it also inevitably will have advantageous repercussions on all the business and industry of the Pacific Coast as well as the areas of the interior. Our people here regard it as one of the most momentous developments that have befallen the West Slope during the life of a number of Congresses.

WESTERNERS AT WORK...

California

Utilities

George H. Hagar appointed engr. of electric operation of the Pacific Gas & Electric Co., San Francisco, succeeding **Dunlap D. Smalley,** made v.p. in charge of operations. **Homer G. Keesling,** electric supt. of East Bay div., appointed central area supt., replacing Hagar. . . .

R. E. Fisher

R. Earl Fisher, recently retired v.p. of Pacific Gas & Electric Co., named supervisor of the San Francisco office of Harry W. Alexander Organization, Industrial Counsel, New York.

Transportation

L. E. Osborne, formerly exec. v.p. of the Aircraft Traffic Assn., appointed director of California Manufacturers Association's newly established freight traffic dept. . . .

Thomas O. Brown has been named traffic manager of the San Francisco Bay Area district of Western Air Lines, succeeding **James M. Keefe,** appointed special assistant to Western's v.p. and treas., **Paul Sullivan.** . . .

Philip L. B. Iglehart, former director and v.p. in charge of operations for Grace Line, elected v.p. of American Eastern, international shipping, trading and development firm. . . .

Pope & Talbot, Inc., announce changes in executive personnel: **E. N. W. Hunter** named ass't to pres.; **Gerald A. Dundon,** v.p. and gen. mgr. steamship div., San Francisco; **W. W. Watkinson,** Atlantic coast mgr. steamship div.

Hubert Brown promoted to the position of exec. assistant of Pacific Far East Line with San Francisco headquarters.

Leaders

Stanley T. Olafson, world trade dept. mgr. of Los Angeles C of C, appointed to serve for one year on the Foreign Commerce Committee of the U. S. Chamber. . . .

New officers of the Greater Los Angeles Management Club, an affiliate of the National Ass'n of Foremen, include: pres., **Mack Stoker;** exec. v.p., **Donald G. Saurenman;** v.p.'s, **Leonard C. Cullen, B. T. Frost** and **Harvey F. Rawlings;** sec.-treas., **Verne S. Myers.** . . .

Rene May, former pres. Foreign Trade Association of the San Francisco C of C and former chm. of the Chamber's World Trade Committee, named a member of the Foreign Commerce Department Committee of the Chamber of Commerce of the United States. He is pres. of Getz Bros., Inc.

New officers of the **Los Angeles Chapter of the Society for the Advancement of Management** are announced as follows: pres., **Edgar A. Williams** of Anderson-Nichols & Co.; v.p., **Charles A. O'Hanlon** of Westcraft, Inc.; sec., **James S. Gallagher** of Grayson Controls; treas., **Stanley Alexander** of Burbank Metals; national director, **Ed C. Cray** of Goodyear Tire & Rubber Co.

Oil

Conservation Committee of California Oil Producers elects **William L. Hobro,** Shell Oil Co., pres.; **R. A. Holman,** American Petroleum Corp., sec.; **T. H. Sherman,** Huntington State Co., first v.-chairman. . . .

J. L. Cooley has been elected v.p. and director of California Research Corp., subsidiary of Standard of California. He will be responsible for research on fuels and special products. V.-Pres. **W. N. Davis** will now supervise research on lubricating products and V.-Pres. **L. P. Elliott** will handle process research and engineering. . . .

J. M. Evans S. W. Selfridge

Standard of California appoints **S. W. Selfridge** as assistant treas. and tax agent, succeeding the late **Rudolph Miller.** Standard has also made recent changes in four departments.

In the engineering department, **J. M. Evans** becomes chief engr. and chairman of the board of engrs., **R. W. Parker** and **E. S. Warner** become assistant chief engrs., and **A. W. Horton** becomes assistant to the chief engineer .

In the producing department, **J. E. Gosline** appointed asst. general mgr.; **J. H. Thacher** succeeds Gosline as mgr. of southern division producing dept.; **W. C. Johnson** becomes general supt. producing dept., southern division.; and **R. E. Clarke** succeeds Thacher as mgr. of the department's gas division.

W. H. Hales appointed chief engineer of the manufacturing department with **W. H. Spaulding** as asst. chief engr. and **J. O. Ciprico** as designs engineer.

Three new assistant mgrs. in the department on organization are **C. E. Braun, L. S. Fish** and **D. H. Voorhies.** . . .

H. H. Hall has been named a director and vice-president of Trans-Arabian Pipe Line Co., and will devote his time to the planning and construction of the projected 1,050-mile Arabian pipe line. Hall has been Standard's chief engineer, and under the new set-up is given the title of consulting engineer for Standard.

Lumber

The Union Lumber Co. appoints **William R. Morris** v.p. and general sales mgr. with offices in San Francisco. . . .

Aircraft

Paul I. Stevens

Paul I. Stevens appointed works mgr. of Consolidated Vultee Aircraft Corp.'s San Diego div. He will supervise manufacturing operations in connection with production of 40-passenger, 300 mph. Convair-Liners and L-13 liaison planes. . . .

Stanley R. Shatto elected v.p. of maintenance and engineering of Western Air Lines, with headquarters in Los Angeles. Formerly an officer of Continental Air Lines.

Charles T. Leigh and **Ewart W. Goodwin** named directors of Solar Aircraft Company, San Diego. Simultaneously **Joseph E. Padgett** announced as director of manufacturing and **Leon T. Noel,** budget director.

A. M. Rochlen, director of industrial and public relations for Douglas Aircraft Co., Santa Monica, named U. S. delegate to the International Labor Organization meeting in Stockholm, Sweden.

Manufacturers

Harry A. Wright

Harry A. Wright, formerly with the Texas Company in New York, appointed vice-president and general sales manager of Pacific Rubber Company, Oakland. . . .

Leonard W. Crosby has been appointed Hawaiian mgr. of the Calif. and Hawaiian Sugar Refining Corporation, Ltd. Mr. Crosby will be in charge of the Asia operations and mgr. generally of C and H affairs in the Hawaiian Islands. He has been assistant to the v.p. and gen. counsel of the company in San Francisco.

C. L. Martindale and **Roy E. Rhoades** named controller and assistant controller, respectively, for the new Lincoln-Mercury assembly plant now under construction by the Ford Motor Company in Los Angeles.

Byron Rife elected v.p. of the Holly Development Company.

Textile Association of Los Angeles appoints **Fred W. Strauss** executive director. . . .

W. Keith McAfee elected chairman of the board of the Universal Sanitary Mfg. Co., with offices at Redlands. Was formerly pres. of the company, and is succeeded by Clyde M. Whittaker. . . .

C. R. Hodgkin named pres., Calco Div. of Armco Drainage & Metal Products, Inc., Berkeley, succeeding H. W. Force, retired. . . .

Colorado

Roland V. Rodman, pres. of the Bay Petroleum Corp., Denver, and its subsidiary, the Chalmette Petroleum Corp., elected pres. of the Anderson-Pritchard Oil Corp., Oklahoma City.

Montana

James C. Her named chief of the division of operation in the northern region of the forest service, with headquarters in Missoula, succeeding James E. Ryan, retiring after 36 years of service. . . .

Nevada

Sen. George W. Malone of Nevada resigned as managing director of the Industrial West Foundation, to be succeeded by Robert Jerome Smith, marketing and industrial development counsel of Washington, D. C.

Oregon

Greater Portland Management Club elects Harold Ley, Westinghouse Electric Co., pres.; Ed Howard, first v.p.; Osmo Adrian, second v.p.; Bill Sisler, treas.; and Howard Gowing, secretary. . . .

The four Oregon men elected to serve on the reactivated walnut control board of the U. S. Dept. of Agriculture to regulate the handling of walnuts grown in Oregon, Washington and California are: John E. Trunk of Newberg, mgr. of Northwest Nut Growers; D. Leo Gholson, Tigard Nut Co.; R. A. Duncan and George D. Cadwell. . . .

Vincent K. O'Connor, Portland, formerly personnel and labor relations mgr. for the Pennsylvania Salt Mfg. Co. at Philadelphia, appointed as special field rep. to assist logging and sawmill members of the Lumbermen's Industrial Relations Committee of Seattle and Portland.

L. G. Buckler, Portland, named gen. mgr. of Adams Portable Spot Welder Co.

W. M. Bartlett appointed director of the Oregon State Bureau of Aeronautics, succeeding Leo Devaney. Other members of the board include Ben Ruffner, chairman, E. S. Maroney, Portland; Lee Everly, Salem; Dr. W. M. Peare, LaGrande, and J. R. Roberts, Redmond.

Otto Peters has been appointed to the staff of West Gate Lumber Co., at Sweet Home, the second graduate forester on the staff.

D. W. Lawrence is in charge of the newly opened Portland offices of W. R. Grace & Co.

Utah

Abe Murdock, former Democratic senator from Utah, named by President Truman to serve as member of the National Labor Relations Board.

Washington

Officers elected by the Weyerhaeuser Timber Co., Tacoma, are: pres., J. P. Weyerhaeuser, Jr.; chairman of the board, Laird Bell; v.p., W. L. McCormick; v.p., Edmund Hayes; v.p. and gen. mgr., Chas. H. Ingram; sec., George S. Long, Jr.; asst. sec., C. J. McGough and Roy Voshmik; treas., F. K. Weyerhaeuser; asst. treas., O. E. Fox; asst. mgr., A. L. Raught, Jr.; gen. counsel, Laird Bell; comptroller, A. D. Orr. . . .

The Northwest Door Co., Tacoma, appoints H. M. Buckner as gen. supt. of factory operations. H. E. Tenzler is pres. . . .

Paul Zeigler, an aluminum research metallurgist, appointed director of the Kaiser Aluminum research and development department, located at the Trentwood rolling mill.

George S. Ripley, mgr. of Container Corp.'s Tacoma plant, named general mgr. of the company's Seattle plant in charge of all operations in the Pacific Northwest area.

Walter Sharpe of Juneau, Alaska, appointed assistant manager of the Alaska Salmon Industry, Inc., with offices in Seattle.

E. H. Herold, cargo-traffic supt. for Pan American Airways, named chm. of Seattle Air Coordinating Committee, with J. W. Spangler, v.p., and G. E. Harrison, sec.

U. W. Killingsworth, exec. asst. to gen. mgr. of Alaska Steamship, appointed gen. mgr. of recently organized Alaska Terminal & Stevedoring Co. of Seattle.

(Continued on page 55)

INSURE A BRIGHT FUTURE!
Order Smoot-Holman Lighting Equipment Today!
• Buy quality lighting equipment now — while sufficient quantities are available at favorable prices. Continued increases in labor costs and uncertainties in raw material deliveries are darkening shadows which may affect the whole lighting industry. You can brighten your own future by placing your order now for modern, efficient lighting equipment.
SMOOT-HOLMAN COMPANY
SMOOT-HOLMAN
INGLEWOOD, CALIFORNIA
MADE IN U.S.A.
OFFICES IN PRINCIPAL WESTERN CITIES • BRANCH AND WAREHOUSE IN SAN FRANCISCO

Robert Zener, ship superintendent, appointed general mgr. of the Seattle division of Todd Shipyards Corp.

Kenneth G. Pryor

Kenneth G. Pryor elected v.p. and gen. manager of Northwest Door & Plywood Sales, Inc., of Tacoma. The election followed resignation of Ray B. Robbins, who is leaving the company to enter business for himself.

Adolph W. Engstrom appointed exec. v.p. and gen. mgr. of Western Metalcraft, Inc., of Olympia. He is former pres. of Kenworth, Motor Truck Corp. and mgr. of the International Harvester Co.'s Emeryville, California, plant.

Associations Elect

The board of managers of the American Bureau of Shipping elected the following to ABS membership: Stephen D. Bechtel, dir. of U. S. Lines and Pacific Coast Far East Lines; Thomas G. Plant, v.p., American-Hawaiian Steamship Co.; John J. Cushing, pres., Matson Nav. Co.; H. B. Haney, transport mgr., Tidewater Associated Oil Co.; Walter M. Wells, pres., Isthmian Steamship Co.; Robert G. Dunlop, pres., Sun Oil Co., and James J. Patterson, v.p. of the Pan American Petroleum & Transport Co. . . . David P. Brown was appointed chief surveyor to succeed David Arnott, who retired as an active officer of ABS on July 31, but will continue in a consulting capacity.

PRODUCTION COST CONTROLS

(Continued from page 49)

lation to the established standard for each week is a matter of basic arithmetic, and the completed report for the previous week is on the owner's desk each Monday morning. The stimulating effect of this record on plant personnel is indicated by the nickname which it has earned, "Pep Sheet," taken from the initials of its title.

This brief description of the Evans cost control system was taken from a step-by-step procedure manual which was prepared as a part of the installation of the procedure. Use of the manual has greatly shortened the expected installation period, and helps to assure continued satisfactory operation of the system with a minimum of follow-up by the engineers.

Cost of the complete installation, including the industrial engineer's fees for time studies, design of forms, and installation help was 1.6 per cent of the year's gross sales. Continuous reviews of procedures and time standards, essential to protect the original investment, is maintained by the industrial engineers at a cost of less than one per cent of monthly sales. This is the only upkeep cost, since no additional personnel is required to operate the system.

(Continued on page 56)

Leading builders of machine tools will tell you*...

*Ask them at the National Machine Tool Builders Show, Chicago, Sept. 17-26

HOFFMAN FILTRATION EQUIPMENT

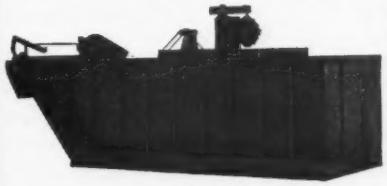
HELPS PRECISION WORK

LENGTHENS TOOL LIFE

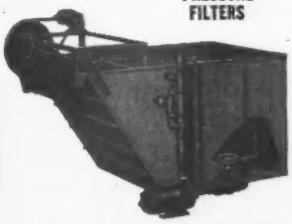
PAYS ITS WAY IN MAINTENANCE SAVINGS

Take a tip from the makers of America's finest machine tools. They recommend Hoffman filtration equipment as a standard accessory for better production. Hoffman units are engineered to deliver clean coolant at specified flow rates. They help to enhance precision finish . . . permit machines to operate longer without cleaning or replacement of cutting or grinding surfaces. Volume and quality of production are profitably improved. Write for Bulletin A-605 and a *free* engineering survey.

PRESSURE FILTERS



FLOTATION EQUIPMENT



VACUUM FILTERS

U. S. HOFFMAN MACHINERY CORPORATION
225 Lamson St., Syracuse, N. Y.
COOLANT FILTERS • FILTRATION ENGINEERING SERVICE

(Continued from page 55)

Owner Smith considers these costs to be very reasonable for the advantages which he has gained by accurate control of his costs. He cites the following benefits as proof.

1. There is no longer any risk of selling goods below cost due to the lack of cost information at selling time.

2. Since the actual cost of each operation is known, the effect of tooling or methods changes can be accurately predicted.

3. High cost lines or uneconomical sizes of otherwise good lines are readily apparent and can either be eliminated or repriced to meet costs.

4. Bids can be made quickly and accurately on new or special jobs by relating their operations to those used on regular items and assigning standard times accordingly.

5. The performance of each operator in relation to normal is known exactly and can be used as an impartial guide for promotions, transfers, raises, or layoffs. Also, the effectiveness of training programs or any change in personnel policy will be quickly reflected in the plant performance percentage.

6. Time required to determine work in process inventories taken each month has been reduced from two days to a half day.

7. Excess raw material usage is apparent as soon as it occurs, and can therefore be more readily controlled.

8. Use of a carbon copy of the shop orders with standard performance times entered for each operation will provide a shop load file in the office when a need for it arises.

9. Utilization of simple forms makes operation of the system possible without adding to office or shop personnel. It is felt that the company now has a cost control system which is adapted to its needs, which will grow as the company grows, and which is fully acceptable to its employees.

Surplus Plants

Wartime installations recently declared surplus, but not yet classified by WAA for disposition, include the following: Pacific Car & Foundry, Everett, Wash.; Seattle General Depot, Seattle; Bay Petroleum Co., Denver; Domestic Manganese and Development Co., Butte, Mont.; Pacific Tire & Rubber Co., Oakland.

Exhibit at Tool Show

Four Western firms are among the exhibitors at the 1947 machine tool show in Chicago in September. They are C. A. Norgren Company, Denver; Axelson Manufacturing Company, Burg Tool Manufacturing Company, and U. S. Electrical Motors, all of Los Angeles.

SHORTLY AFTER THE WAR ENDED, we announced a construction program which will provide 1,000,000 additional horsepower of electricity and expansion of natural gas distribution facilities to help build a greater California. This program will cost over $350,000,000 during a six-year period. Last year over $44,000,000 was spent on this program, and nearly $7,000,000 a month has been spent so far this year to press forward this vast construction and expansion throughout Northern and Central California.

When the program is completed in 1951 there will be available a total capacity of more than 3,500,000 electric horsepower for distribution to the homes, farms and factories in the area this Company serves.

Down through the great Central Valley from Shasta County to Kern County and along the coastal plain from Humboldt County to Santa Barbara, P. G. & E.'s integrated network of generating and distributing facilities is being expanded as fast as materials and equipment can be made available. Thus we provide electric power and gas service for the future needs of Northern and Central California.

P • G • and E •

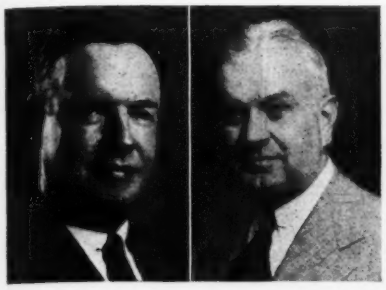
PACIFIC GAS AND ELECTRIC COMPANY

WI 109-947

CONVENTION PROGRAMS

NATIONAL ASSOCIATION OF FOREMEN

Westerners will play a big part as principal speakers and discussion leaders at the convention of the National Association of Foremen, to be held September 18-20 in Los Angeles. Attendance of some



Harry Woodhead Edgar C. Hummel

12,000 management men is expected, making it by far the largest assemblage of management people in American industrial history.

Principal speakers from the West will be Edgar C. Hummel, president, Utility Electric Steel Foundry, Los Angeles; Eugene Caldwell, vice-president and general manager, Hyster Company, Portland; and Harry Woodhead, president, Consolidated Vultee Aircraft Corporation, San Diego.

Discussion meetings and leaders are listed below:

1. **Management Tools for Foremen**
   H. E. Ryker, Vice-Pres. of Manufacturing
   Lockheed Aircraft Corp.:, Burbank, Calif.
2. **Qualities of a Good Management Man**
   Joseph M. Trickett, Dean, School of Mgt.
   Golden Gate College, San Francisco, Calif.
3. **Management Team Training for Profit**
   W. C. Stevenson, ass't to Exec. Vice-Pres.
   Industrial Relations
   Union Oil Co. of Calif.
   Los Angeles, Calif.
4. **How Can NAF Tell America's Story?**
   Eugene Baron, Vice-Pres., Gen. Mgr.
   Pacific Press, Inc.
   Los Angeles, Calif.
5. **What Can Management Men Contribute to Economic Stability?**
   Dr. Ray E. Untereiner, Ph.D. Prof. of Economics
   Calif. Institute of Technology
   Pasadena, Calif.
6. **What Does NAF Offer Managers in Small Businesses?**
   George Ford, Exec. Vice-Pres.
   Joyce, Inc.
   Pasadena, Calif.
7. **Building Dynamic Industrial Relations**
   Russell L. Moberly, Dir. Industrial Mgt. Institute
   University of Wisconsin.
8. **Is Stabilized Employment in Sight?**
   George Shellenberger, Exec. Vice-Pres.
   Merchants and Mfg. Ass'n, Los Angeles
9. **Why a Management Club?**
   Ken Yost, NAF Regional Mgr.
   Dayton, Ohio
10. **Safety Is an Idea . . . How to Sell It**
    A. J. Martinson, Safety Director
    Calif. Petroleum Safety Board, Inc.
    Los Angeles, Calif.

Eugene Caldwell

11. **Sharing Information with Employees**
    J. E. O'Hagan, Vice-Pres.
    Allied Record Co., Inc., Los Angeles, Calif.
12. **What Foremen Ask About Business**
    Robert Donaldson, National Field Director, Com. for Economic Development
    New York City
13. **The Management Team—Foremen to President**
    Fred B. Ortman, Pres. Gladding, McBean & Co.
    Los Angeles, Calif.
14. **Tomorrow's Management—Man to Man**
    M. M. Gouger, System Director of Personnel
    Transcontinental & Western Air, Inc.
    Kansas City, Mo.
15. **Inspiration or Desperation Lie Ahead**
    F. Colyer Snyder, Lecturer and Industrial Consultant
    Kingston, N. Y.
16. **A Practical Approach to Executive Development**
    F. S. Cornell, Asst. to the Pres.
    A. O. Smith Corporation
    Milwaukee, Wisconsin.
17. **The Foreman's Responsibility to His Community**
    Dr. J. Whitcomb Brougher
    First Baptist Church of Glendale
    Glendale, Calif.
18. **Work Simplification——A Management Tool**
    Allen H. Mogensen, Industrial Consultant
    New York City
19. **Earning Employee Backing**
    Dr. Paul A. Dodd, Ph.D.
    Dir., Inst. of Industrial Relations
    University of California, Los Angeles, Calif.
20. **Management's New Needs From Colleges and Universities**
    John D. Spalding, Works Mgr.
    National Supply Co.
    Torrance, Calif.
21. **New Effects of Legislation on Business**
    Harry Jeffrey, Attorney
    Dayton, Ohio
22. **The Foreman's Role in Job Evaluation and Wage Incentive**
    John A. Patton, President
    J. A. Patton Mgt. Engineers
    Chicago, Ill.

Titles and leaders of three additional discussion meetings to be announced later.

PACIFIC INDUSTRIAL CONFERENCES

The Pacific Industrial Conferences, running concurrently with the 1947 Pacific Chemical Exposition in San Francisco, October 21 through 25, will feature groups of the California Section which include American Institute of Chemical Engineers; American Society for Testing Materials; American Institute of Mining and Metallurgical Engineers; Golden Gate Paint and Varnish Production Club; Northern California Rubber Group; Pacific Insectitude Institution; Institute of Food Technologists; Western Chemical Market Research Group; Analytical Group, California Section of American Chemical Society; Petroleum Group, California Section, American Chemical Society. Dr. R. D. Stewart of the University of California will act as Program Coordinator for the Conferences.

Program for each group follows:

Western California Rubber Group

Walter E. Boswell of the Thiokol Corporation in Los Angeles will read a paper on Thiokol.

E. N. Cunningham and R. M. Howlett of the Enjoy Company in Los Angeles will present a paper on Perbunan and Butyl and the film "Bouncing Molecules."

Dr. W. E. Elwell of California Research Corporation will speak on the "Chemistry of Rubber."

William R. Snyder of the R. T. Vanderbilt Company in Los Angeles will speak on "Carbon Black and Other Compounding Agents."

Ralph T. Hickcox of Goodyear Tire and Rubber Company in Los Angeles will speak on "Foam Rubber, Hard Rubber and Other Specialties."

Golden Gate Paint and Varnish Production Club

J. R. Patterson of the Resin and Insulatory Materials Division of the General Electric Company in Schenectady, N. Y., who will speak on "Silicone Resins."

E. P. Peterson of the Research Laboratory of the National Lead Company in New York City, who will speak on "Basic Silicates of White Lead."

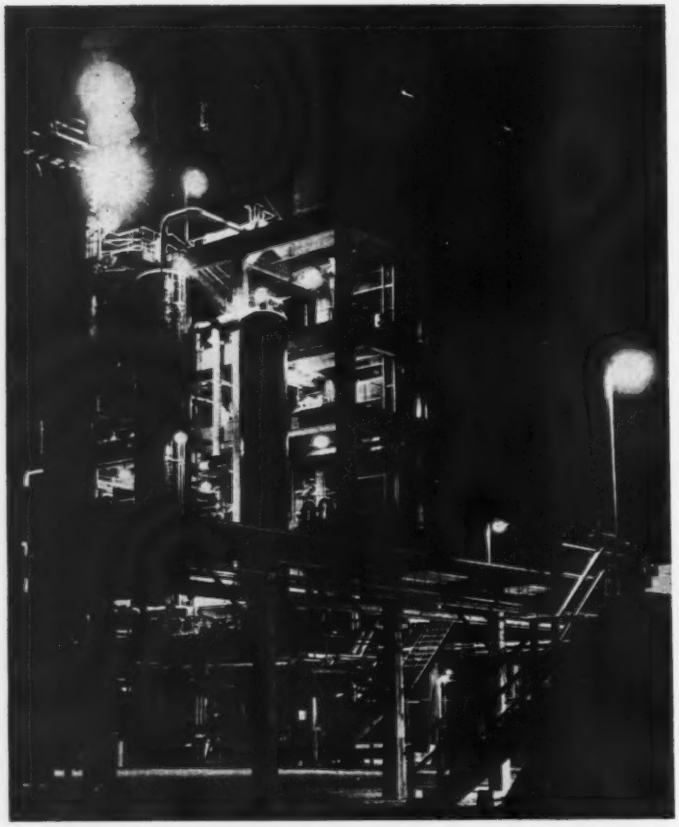
Institute of Food Technologists, Northern & Southern California Sections

Professor A. J. Haagen-Smit of the California Institute of Technology in Pasadena, "Chemical Studies on Flavors."

Charles Townsend of the National Canners Association in San Francisco, "Microbiology of Foods."

Dr. Sven Lassen of Van Camp Sea Food Company of San Pedro, "Products and By-Products of the Fishing Industry."

(Continued on page 73)



• Ethyl benzene unit which produces styrene at the Dow Chemical Company division of the Southern California synthetic rubber project.

Synthetic Rubber On Trial As Total Demand Increases

REGIONAL REVIEW
Tehachepi to Tijuana

LOS ANGELES.—With shipments of natural rubber now arriving in unexpectedly large volume, this area's synthetic rubber industry is nearing its long-awaited hour of trial.

Butadiene production at plants of Shell Oil and the Southern California Gas Company have been closed down and U. S. Rubber has put its synthetic plant in standby condition, under an RFC order sharply reducing the nation's synthetic rubber production. Thus Standard will produce the butadiene needed, Dow the styrene, with Goodyear blending them into the synthetic product.

Far from subsiding like a punctured balloon, the rubber nevertheless appears to have a bright period of prosperity just ahead. Stiff competition, heralded by a flurry of price-cutting on tires, is but a return to a condition quite normal to the rubber trade. Herbert E. Smith, U. S. Rubber's president, said during his recent visit here that the industry will do twice as much business this year as it did in any pre-war year.

The position of synthetic rubber holds unusual significance here because of the West Coast's extensive mechanical rubber goods industry. Only five out of the Coast's 83 factories are tire plants. Man-made rubber is most adaptable to the special engineering problems arising in the mechanical goods market, hence this field provides the larger and more promising market for synthetic.

While tire production continues at near-record high levels, demand for mechanical goods is so brisk that most plants are behind on their orders. This demand offers a rather surprising reflection of Western industry's refusal to shrink drastically as was generally predicted. Such items as conveyor and transmission belts are sought both to replace worn equipment in war plants and to outfit new installations just getting ready to operate.

The West's heavy industries, particularly mining, lumbering, and big construction, account for much of this sustained prosperity — aided by constant research works which yields innumerable new applications of rubber.

One such discovery, for instance, may help avert disastrous explosions in Western coal mines by removing one of the most common causes—the sparks occurring when an electric cable is cut by power machinery or run over by heavy equipment. Engineers solved the problem by (a) jacketing the cable with a bright yellow rubber which is easier to see, hence less likely to get damaged inadvertently; and (b) weaving a fine copper wire into the power cable sheath to carry a warning leakage current which instantaneously "telegraphs" an impulse to a circuit breaker and shuts off the power.

Another technical development of wide application is the war-perfected technique of lining steel tanks with rubber to protect them from the chemical action of acids which nowadays are used so generously in industry.

Belting and hose sales on the Pacific Coast have more than doubled since 1940. The demand for conveyor belts, thanks to manufacturers' new awareness to material handling costs, has been particularly heavy since the end of the war. Synthetic rubbers specially engineered to withstand abrasion now permit construction of rubber "highways" for transporting such material as copper ore and coal. In one southern California plant, a mile and a half of conveyor belts are used to move the gravel from the pits to the crushers.

Western Iron Competes

Those who once scoffed at the idea that Western iron ever could compete favorably with the fabulous Mesabi ores have another shock coming. Satisfied with tests of his Eagle Mountain property northeast of California's Imperial Valley, Henry Kaiser is building a 52-mile railroad to haul ore from the mine. Three engineering firms in Los Angeles, Seattle, and San Francisco will join forces to drive a spur so that Kaiser's own diesel electrics can pick up empty cars from the Southern Pacific main line and return them loaded for the haul up grade to the Fontana mill.

Samples of the Eagle Mountain ore, testing approximately 53.9 per cent iron, have been trucked in for actual production runs in Fontana blast furnaces. With completion of the rail link, Kaiser's former source of ore, the Vulcan mine, a smaller and leaner deposit, will be shut down.

Of particular interest to friends of Western steel is the estimate that the richer ore means a drop of $1 to $2 per ton in operating costs.

According to Kaiser sources, Fontana already would rank in the lowest third among the nation's steel mills in point of costs, were it not for the $16.40-per-ton charge necessary to meet the RFC loan.

To old-timers who shake their heads dubiously at the long, expensive haul of coal from Utah, Kaiser experts retort that the Western ore is being reduced with 25 per cent less coal than is usually required in the East.

Mining engineers place the established reserves at Eagle Mountain at 25,000,000 tons, or enough ore to run Fontana 40 years at the current rate, although some believe that the life of the mine may stretch out to 70 years when zones beyond the scope of the preliminary core sampling have been penetrated.

Gladding, McBean Company is reopening its ceramic veneer plant in the Los Angeles industrial district to meet increased demand in the commercial con-

(Continued on page 60)

They checked and found that every square foot of Blaw-Knox Steel Grating has these advantageous features:

1. *One-piece* electroforged construction develops the full strength of all sections of metal used in manufacture.
2. *Maximum Open Area* for light and ventilation.
3. *Easy to Maintain* . . . easy to paint thoroughly.
4. *Self-Cleaning,* no sharp angles to retain debris.
5. *Safe* footing at all times due to twisted cross bar.

FREE . . . So that you can have a "close-up" of Blaw-Knox Grating construction, write today for this "paper-weight-size sample" on your business letterhead.

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2053 Farmers Bank Bldg., Pittsburgh 22, Pa.

A large stock of BLAW-KNOX ELECTROFORGED GRATING is maintained at the Plant of the W. S. Wetenhall Company in San Francisco and all West Coast orders are serviced and shipped from there.

BLAW-KNOX *ELECTROFORGED STEEL* **GRATING**

Distributed by
Brodhead Steel Products Co., 17th & Wisconsin Sts., San Francisco 10, Cal. Tel.: HE 1-1480
Edward M. Ornitz & Co., Inc., 215 West Fifth St., Los Angeles 13, Cal. Tel.: Mutual 3381

Synthetic Rubber On Trial

(Continued from page 59)

struction field. The company recently closed contracts to make exterior facings for the new General Petroleum building and several Sears, Roebuck retail stores.

Cross Country Skyway

Two organizations, at opposite ends of the continent, have joined in plans for the nation's first cross-country skyway for private aircraft. The Los Angeles Chamber of Commerce and the Washington, D.C. Board of Trade are asking CAA to designate the route, which would be so well marked that the average small plane owner could fly it as readily as today's motorist follows a major highway.

As the first step, towns within the 40-mile strip of the route will be asked to set up standard markers with the names of cities, directions to airports, compass arrows, and other identifying signs. If successful, the move will at last give the pleasure flier "somewhere to go" without the necessity of risking his life looking for the names of towns on railroad stations.

Forward-looking aircraft industry men see the need for a real aerial "highway" system as one of the major factors now delaying creation of a mass market for personal planes. Along with route markings, of course, are needed better and more economical airport facilities. Official recogition of this fact came recently from Los Angeles County officials, who have awakened to the realization that the nation's number one aircraft production center sets an exceedingly poor example to the rest of the country, when it comes to providing for future growth of the private plane industry.

A study by the Regional Planning Commission reveals the startling fact that the county now has only half as many airports as in 1929, although the number of personal planes in the area has increased at least five-fold.

At this rate of attrition, airports for personal aircraft will be extinct by 1960—whereas, if CAA estimates prove accurate, facilities for 16,000 small planes would be needed by 1955, requiring at least 100 airports of present average size. The shrinkage is due to the fact that revenues from airport operation are proving insufficient, while value of the land for other purposes is rising. Only two of the eleven leading small airports are owned by their operators, most of them being leased on a short term basis and simply tolerated until the land becomes more valuable as a subdivision.

"When the airport for personal aircraft ceases to exist, so will the market for personal aircraft in this area," declared Colonel William J. Fox, chief engineer of the county's Regional Planning Commission, in making public his department's survey.

County officials forthwith met with airport operators to discuss a plan under which the landing strips and taxiways might be dedicated to public use, just as roadways are dedicated by subdividers. The county would assume the burden of maintenance and relieve the operators also of taxes, which for some fields constitute an exceedingly heavy load.

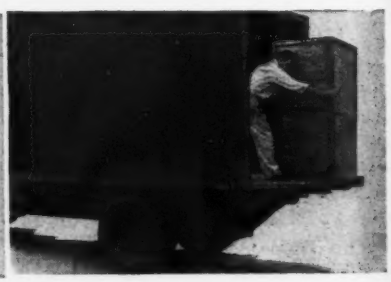
The airports would have to be brought up to certain standards before the county would accept dedication, but the operator would benefit by the more attractive facilities and by the enhanced value of his remaining "frontage" on the airstrips; while the county would have provided a sound basis for long-range development of its major manufacturing industry.

Ryan, which recently acquired from North American the design and manufacturing rights to the four-place "Navion," is going strong also on its developmental work. Its engineers are giving final touches to a new flight power booster called an

"CUT DELIVERY" TIME and COSTS with ANTHONY LIFT GATE

PLACING LOAD ON GATE

GATE LIFTS LOAD

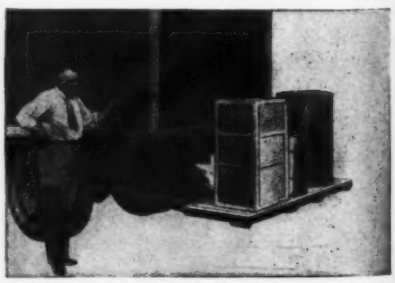


IN OR OUT OF TRUCK—EASILY

With an Anthony "Lift Gate" to load and unload your trucks, you get these many profitable advantages:

Here is a rugged, proved piece of truck equipment that unquestionably cuts delivery costs, earning additional profit from your truck. It will improve your service to old customers, help you get new customers, and assist you materially to "beat your competition."

- The "Lift Gate" is like an extra helper.
- The "Lift Gate" is like free cargo insurance.
- The "Lift Gate" improves customer relations.
- The "Lift Gate" is "free advertising."
- The "Lift Gate" is a safeguard against personnel accidents.
- The "Lift Gate" makes more deliveries per day possible.
- The "Lift Gate" is worth many times more than it costs.
- The "Lift Gate" eliminates the necessity of having your drivers be "weight lifters" and "jugglers."



Anthony Hydraulic "Lift Gates" are being used by hundreds of businesses and industries to modernize delivery services. They save a tremendous amount of time, money and hard work. The cost is surprisingly low. Many present users report savings that more than pay for their "Lift Gate" every few months. Let us send you complete information.

AVAILABLE FOR IMMEDIATE DELIVERY ON WEST COAST

ANTHONY CO. *Dept. WI* **STREATOR, ILL.**

"After-Burner" which reportedly is to increase the propulsive force of a jet-propelled power plant. Compressing exhaust air from the jet-stream, the After-Burner mixes it with added fuel which is ignited, giving added thrust which the company states will be especially useful for take-offs and for military planes in tight combat situations. The extra push also is to help break through the "compressibility barrier" as planes approach the speed of sound. Such experimentation is given added significance by the AAF announcement that 64 per cent of the planes it plans to build next year will be jet propelled.

Illustrating the rapid shrinkage in the aircraft industry's huge war-end backlog of orders, Douglas Aircraft's semi-annual statement shows that new bookings in 1947 have but little more than offset cancellations, while shipments and deliveries amounted to some $38,000,000. Result is decline of the backlog to $165,000,000, as compared with $200,000,000 at the end of the first quarter.

The airlines, however, show signs of recovering from the body-blow dealt them by last year's unparalleled string of sensational crashes. Western Air Lines, for instance, is in the black again, thanks to an increased mail rate, higher passenger fares, and an aggressive cost reduction program. In personnel alone, Western has reduced its payrolls more than 28 per cent this year.

Multiple Tenancy

The much-discussed "multiple tenancy" plan of absorbing over-size war plants into the local economy seems to be working itself out well at San Diego, where the remaining portion of Consolidated-Vultee Plant No. 2 has just been sold by the War Assets Administration to C. W. Carlstrom for somewhat more than $1,000,000. The buyer, who plans to use part of the space for his transfer and storage business, is expected to have no difficulty in leasing or disposing of the balance, since a number of local concerns already had evinced strong interest in various buildings. Among the unsuccessful bidders in earlier stages of negotiations were a local creamery, an air-conditioning equipment manufacturer, a steel company, and an Eastern garment concern.

The new occupants will join a sizable family of enterprises which already includes a bakery, two heating and ventilating companies, a manufacturer of a motorcycle delivery vehicle, the County of San Diego, a veteran-operated cooperative, and the San Diego Baseball Club, the latter utilizing the huge parking lot.

Rocket Development

Out of the colony of scientific equipment manufacturers which sprang up at Pasadena during the heyday of secret war projects, continues to come interesting new technical accomplishments. Among them is Aerolab Development Company's ingenious method of simulating jet or rocket thrust in a wind tunnel model without the use of external air, combustion, or compressors. The company specializes in wind tunnel models and equipment for airframe makers and research institutions, and has developed special devices such as machinery for manufacture of propellor blades and for the contouring of steel wings.

How the East-West trade picture has broadened is indicated by a recent listing by the Los Angeles Chamber showing approximately 75 resident buyers are permanently stationed here to purchase local products for eastern department stores and specialty apparel distributors. The Chamber is now completing a "four-way" file of some 800 manufacturers' agents, each handling three to 60 different lines, with the purpose of helping buyer and seller find each other.

The Chamber points out that the same Southern California area which has distributed its products widely over the 11 Western states has also at the same time been a customer for hundreds of millions of dollars in purchases of raw materials, food commodities, and other products of the West. It's the old international trade idea of you-scratch-my-back, I'll-scratch-yours—minus the tariffs.

call California for
hot coiled springs
SPRINGS
From the largest to the smallest.
◀ Write for complete new catalog.
California Spring
COMPANY • INCORPORATED
Spring Headquarters of the West since 1923
1746 SO. LOS ANGELES ST. • LOS ANGELES 15, CALIFORNIA

• An aerial view of the Port of Stockton, California. Courtesy Stockton Record.

"Scrap, Scrap Everywhere And Not a Pound to Melt"

REGIONAL REVIEW
Sierras to the Sea

SAN FRANCISCO — The Ancient Mariner's lament, "water, water, everywhere, and not a drop to drink," has nothing on the present steel scrap situation. "Scrap, scrap, everywhere (350,000 tons of it), and not a pound to melt" is what an investigating committee from the steel industry has found after surveying government installations in northern California.

Although appeals have been made to Washington for a year or more to get some action on disposing of this scrap to relieve a critically tight market, here is what the regional sub-committee of the steel, foundry and scrap industries committee for expediting iron and steel scrap has reported:

"We are all in agreement, both the committee and the regional War Assets Administration officials, that there is 350,000 tons or more of ferrous scrap visible in this area, yet the machinery for the immediate sale and shipment of this scrap is not sufficiently set up to meet the persent crisis.

"There appears to be lack of a full realization of the seriousness of the situation. A definite and immediate program just does not exist.

"It is evident that the controlling agencies of the government, as far as scrap disposal is concerned, are too slow moving in the present emergency. It will require an intelligent, courageous and vigorous policy from the Washington level of all controlling agencies to accelerate the sale of the 350,000 tons or more of scrap visible in this area. The present methods of disposal to meet the current scrap crisis are wholly inadequate and unsatisfactory."

Members of the sub-committee are H. W. Christenson, chairman, Columbia Steel Co.; E. W. Thomas, Bethlehem Pacific Coast Steel Corp.; M. A. Shapiro, California Metals Corporation; R. E. Kroeck, Enterprise Engine & Foundry Co; H. Dull, Moore Machinery Company.

The inspection of seven depots in the northern California area made jointly by committee members and WAA representatives, revealed a vast amount of wartime equipment, some usable, some in process of screening by WAA and a great deal that has not been released by the Army. Summarized, the report is as follows:

Riverbank: 8,000 tons observed, 50 per cent usable. Machine tools, pipe fittings, valves, structural plate and shapes.

Marinship and Richmond shipyards: 150,000 tons available for scrap. Special pipe fittings, flanges, valves, bolts, miscellaneous heavy hardware and "fixed scrap," consisting of non-demolished steel loft tables, platforms, ramps, tables, tracks, all formerly used in construction of ships and of no commercial value. Also welding machines, tools, fittings, structural and pipe, a good percentage of which eventually will be scrapped, but is not included in the estimated tonnage considered available now.

Army Depot at Lathrop and Naval Supply Annex, Stockton: 200,000 tons available for scrap. Land mine demolition apparatus or "snakes," Bailey bridge gear, heavy hardware, valves, fittings and approximately 800 tons of miscellaneous prepared scrap. All except the prepared scrap located at Lathrop. Available tonnage still under Army jurisdiction, not yet declared surplus, has no commercial value and could be quickly processed as good open hearth scrap.

Benicia Arsenal and Mare Island Navy Yard: 10,000 tons available for scrap. Tonnage principally spare parts for LVTs and other miscellaneous spares for ships and barges. Scrapping operations proceeding normally at both places.

The only lot of machine tools of any consequence inspected by the committee is stored at Riverbank, and the entire committee recommended that all tools over 25 years old be mutilated and immediately sold for scrap. Recommended further that the newer tools of a special nature, such as the LeBlond special gun boring lathes, Betts Bridgeford special shell turning lathes and the special gun lathes built by Fairbaron, Lamson, Combe, Barbon, Ltd., at Leeds, England, be prepared for storage unless ordnance experts consider the equipment obsolete.

A few machine tools were found at Marinship, most of them well over 25 years

OXYGEN
ACETYLENE
HYDROGEN
NITROGEN
WELDING
EQUIPMENT
& SUPPLIES

Stuart Oxygen Co.
SAN FRANCISCO · OAKLAND · LOS ANGELES

This carbide is making acetylene in ten countries you can depend on it

PACIFIC CARBIDE

Manufactured by
Pacific Carbide & Alloys Co.
PORTLAND, OREGON
Distributed and guaranteed by
STUART OXYGEN CO.

old, which the committee recommended scrapping. Other tools usable and should be offered for sale. Same recommendation for the few tools inspected at Mare Island. Machine tools scrapped roughly would amount to 400 tons.

The committee recommended that successful bidders guarantee that the scrap be used for melting purposes, and specify the time needed to process and ship the materials.

Shipyard Sold

Disposal of real property by War Assets in the northern California area took a big step forward last month when Standard Oil Company of California bought for $6,000,000 the government-built refinery at Richmond where Standard manufactured 100-octane gasoline in wartime, and Graham Industries, Inc., purchased the Moore Dry Dock Company West Yard in Oakland for $2,750,000 cash.

The refinery sold for more than the current fair value of $5,339,630 which WAA had fixed on the property. Standard originally asked for a deal that included permission to return the property at any time to the government on forfeiture of payments made, but WAA insisted the sale must be final and Standard agreed. The plant cost the government $21,214,949.

Graham Industries have been operating the West Yard since August, 1946, and they expect to concentrate there the operations of all their companies, which include Graham Dry Dock Company, Graham-Doan Truck Co., manufacturers of low-bed trucks; Graham Durable Furniture Co., manufacturers of wrought iron furniture; and Graham Remanufacturing Co. They have been employing 415 men at the yard, but expect to increase it to 2,600. The property consists of 52⅔ acres, 16 acres of which is under water. Fair market value had been set by WAA at $5,250,000. Moore Dry Dock and Todd Shipyards also bid on the property, but their offers were far below the Graham bid.

No Room For Harry?

For the first time in the history of West Coast shipping, the principal Pacific Coast shipping organizations have been gathered together in one centralized location, through the purchase of the eight-story St. Clair Building at 16 California Street. Seven coastwise steamship associations, including collective bargaining, trade, rate and accident prevention groups. No offices were set aside for Harry Bridges, as far as *Western Industry* can learn.

A Bay Area industrial exposition has been announced for July 2 to 9, 1948, in the San Francisco Civic Auditorium under sponsorship of the San Francisco Junior Chamber of Commerce. The firm of Kriedt

(Continued on page 64)

Fabco
FLEXIBLE COUPLING

IN THE MAKING

FABCO FLEXIBLE COUPLINGS are expertly engineered, made of the finest materials on high speed precision machines which turn them out in quantity and keep the prices competitive. They are an every day production item with us—that's why you can get such good service when you order FABCO FLEXIBLE COUPLINGS.

Dealers normally have all popular sizes right in stock, but if the dealer is out of the size you want, we just reach into a bin and ship you one or more on his order. We keep adequate reserve stocks on hand at all times. When you want a flexible coupling you don't want to wait while someone takes the time to make it—and you don't want to waste the days it takes to ship one from afar.

When you want the best in couplings at a reasonable price and you want them quickly—order FABCO FLEXIBLE COUPLINGS from your dealer.

F.A.B. MFG. CO.
1249 SIXTY-SEVENTH STREET
OAKLAND 8 · CALIFORNIA

Scrap, Scrap Everywhere

(Continued from page 63)

& Myers, exposition managers, has been selected to manage the exposition.

Fifty-three new plants and 22 factory expansions for Northern California for June are reported by the San Francisco Chamber of Commerce for June, bringing the total for the first half of the year up to $64,318,700.

Freight car movements for the six months for San Francisco were 2.3 per cent above last year, but ship arrivals and departures increased about 25 per cent. Industrial placements were off 20 per cent for the period, but commercial placements were up 2.9 per cent. Number of express shipments by rail were off 26.9 per cent, but by air were up 6.9 per cent.

Since V-J Day 345 major industrial projects in the metropolitan Oakland area have been announced or completed, according to the research department of the Oakland Chamber of Commerce. They provide a total expenditure and capital investment of $79,414,757, an annual payroll of $23,674,000 and 11,837 new jobs.

A briefing session for executives of development groups in the San Francisco Bay area on the San Francisco Bay Area's program for cooperation within the region was held in Oakland August 13. The Council's plans for joint action in bringing industries to the area was reviewed by R. E. Fisher, council chairman, and Frank Marsh, executive vice-president and general manager.

Each major committee outlined its whole story, in preparation for a real start on the program early next year. Sacramento and San Joaquin counties have discussed joining the council, and Leslie Van Doren from the Sacramento Chamber of Commerce and H. T. Wood of the Stockton chamber attended the meeting.

Stuart Walsh, vice-chairman of the industrial committee, has been appointed to bring the various economic surveys of the region up to date. Another new project is a survey of open capacity, to determine what new products can be manufactured in the area, and a study of what facilities are still needed.

Growing standing of the new Stanford Research Institute is indicated in the announcement that it will set up an intensive technical study of the aircraft manufacturing industry, to aid the Army and Navy in a special report to President Truman next year on the size and character of the peacetime industry needed to meet "emergency production requirements." The intergovernment aircraft coordinating committee announces that the government survey of October, 1945 (see *Western Industry*, Dec., 1945), in which dispersal of the southern California plants was recommended, needs face-lifting, because of "changed strategic plans," the slump in non-military plane sales and the failure of government purchases to reach the peacetime levels originally set as a minimum.

Approved Firms For Japanese Trade

First quota of American business firms approved by General MacArthur to enter Japan to develop Japanese trade includes the following from the Pacific Coast, with the firm representatives:

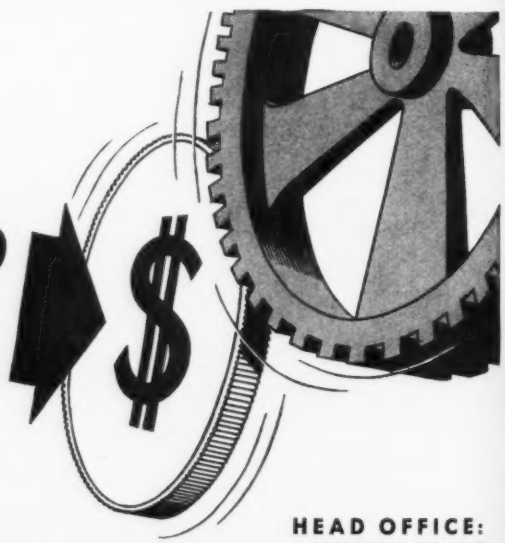
Los Angeles: David Cornman; Davis & Company, Irving A. Davis; The Valianos Company, James Taugio Ota; Yaras & Company, Herman Yaras.

Portland: Gilbert Brothers, Inc., Joseph R. Grossman; Griffith Transport Company, E. J. Griffith; The United Commercial Company, Henry T. Tsugawa.

San Francisco: American Commerce Company, M. H. Gilmore; The American Import Company, Laurence M. Dickson; Connell Bros. Co., Ltd.; W. S. Allen, Jr.; Frazar & Ransen, Ltd., Rudolph N. Senasac; Hurricane Import Company, Morris Greenblat; Modern Food Products Company, Wesley K. Oyama; Marsman Company of California, Ralph V. Dewey; Otto Sales Company, Inc., Walter E. Otto; S. Isaacs & Company, Irwin Mayo Isaacs.

Seattle: Barclay and Company, Inc., E. L. Healey; Grays Harbor Exportation Co., Inc., John P. Herber; John P. Herber & Co., Inc., John P. Herber; Jensen-McLean Company, Inc., George Alf Jensen.

It takes money to make wheels turn



Power turns production wheels... but capital keeps them spinning.

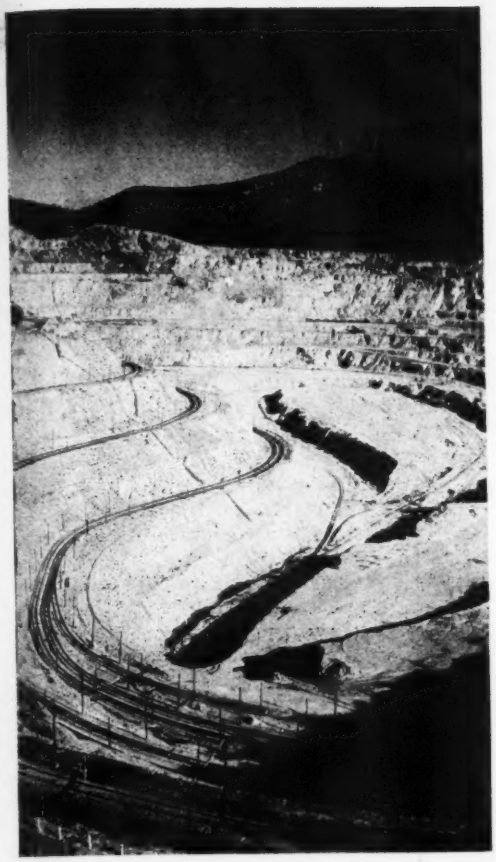
When you need money for increased production... for expansion, equipment, construction, raw materials, inventory, seasonal needs or more working capital you usually need it fast. It is Anglo's policy to negotiate sound business and industrial loans quickly and without red tape.

ANGLO CALIFORNIA NATIONAL BANK

HEAD OFFICE:
1 SANSOME STREET
SAN FRANCISCO 20

Other Offices in
BAKERSFIELD
BERKELEY · CHICO
FRESNO · HANFORD
LEMOORE · MODESTO
OAKLAND · PALO ALTO
RED BLUFF · REDDING
SAN FRANCISCO
SAN JOSE

MEMBER FEDERAL RESERVE SYSTEM • MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION



• The open pit copper mine of the Chino Copper Co., division of Kennecott, at Santa Rita, N. M. Steam shovelling began in 1910. Pit is now 400 feet deep.

Reds Sizing Up Western Mining Machine Business

Some observers aren't so sure the threatened competition might not be a serious matter . . .

DENVER—The Reds are sizing up the West's mining machinery business, long one of the most successful of Denver's manufacturing enterprises, with a view to going it one better in the world market.

This is a laugh to mining engineers who pooh-pooh the ability of Soviet industrialists to turn out machines that will work. But some observers, familiar with recent products of Russian technology, aren't so sure but what the threatened competition might be a very serious matter in another decade or so. If the Russian sphere of influence absorbs many more of the world's strategic sources of minerals and metals, American mining machinery houses might be faced with a loss of some of their best prewar markets.

Lawrence Martin, associate editor of the Denver Post now on a roving assignment to stir up as much anti-Soviet feeling as possible (he has been at it for years, in a small way), poked around Washington, D. C., and came up with word that the Soviets are trying to make trade treaties with South American and European countries that would put U. S. machinery and tools at a very decided disadvantage.

REGIONAL REVIEW
The Continental Divide

He points out that American wages and standard of living can't compete with some of the cheap foreign competition. Admitting that the Russians have a long way to go to prove to any prospective buyer that they can turn out machines that will work, Martin sees enough in the threat to put the West on an alert against it.

Going farther, Martin sees the Reds doing the same with meat and grains—more competition for the products of the Rocky Mountain empire. Here the angle seems to be that the Russians will provide immediate aid (at the expense of the people of Russia) in exchange for long-term economic deals designed to shut out the products of the Western world and give the Soviets a long headstart toward the kind of world they would like best.

Break for Alamosa

Except for a crooner's ditty about "The Singing Sands of Alamosa," the great San Luis Valley of south central Colorado hasn't been very much in the limelight in recent years. The great mountain-rimmed bowl produces trainloads of beef cattle and more trainloads of spuds every year, along with many other kinds of produce.

But get braced to hear a lot about the San Luis Valley and its leading city, Alamosa. The great Wilbur B. Foshay has arrived to be secretary of Alamosa's Chamber of Commerce, and lest anybody think this is said in a spirit of levity, it should be remembered that Foshay is the man who built the Foshay utilities empire in Minnesota's twin cities area before the crash of '29. The Foshay tower still dominates the skyline there.

Out in Colorado, Bill Foshay had friends who stuck by him in spite of his troubles (and he had plenty, no fooling). Because the people of Salida stayed with him and gave him a job with the chamber of commerce when the breaks were running against him, Foshay put Salida on the map in a big way when that was exactly what the city fathers wanted most.

Then Foshay went out to the nearby trout "farm" operated by a friend named Frantz, and proceeded to make it consid-

erably easier for trout from Frantzhurst to find their way to dining tables in New York, Miami, Chicago, Seattle and points in between. Now Foshay is settling down in Alamosa to perk up that community which never has been able to determine if it wants to be a bustling Main Street or the prototype of "In a Little Spanish Town . . ."

Whatever it wants, Alamosa has found a good man to help achieve it. The Saturday Evening Post and other national publications still will be publishing Foshay-inspired pieces about Salida for another year or so, but gradually it will become evident that the region's No. 1 promoter has a new town and a new job. It isn't "Foshay of Salida" any more. Now it's "Foshay of Alamosa."

Secret City

Not since the early days of the war when "Pasco" was the magic word for some fantastic super-secret war project being developed on the upper Columbia in Washington state has there been so much curiosity about a place as that concerning Los Alamos, secret city of the scientists in New Mexico a few miles from Santa Fe.

Pasco, where the big uranium pile produces products of atomic fission, for war or otherwise, no longer is a shush-shush proposition and several of the nation's leading industrial concerns are moving right ahead with operations there. In the same way, Los Alamos isn't kept under wraps any more. Thousands of tourists have "explored" the country north of Santa Fe to find the one-time school for boys that has become the retreat for the top physicists of the western world.

What little mystery remained about the town itself has been dispelled by an article, "The Secret City of the Scientists," by Sanky Trimble in the August issue of New Mexico Magazine (State Capitol, Santa Fe, $2.00 per year). Good photographs, human interest anecdotes and a complete-from-the-beginning story make it good reading.

Featured in drawing and words is the spectacular western housing area, newest development at Los Alamos, where 300 permanent houses are being built on the slopes of the Jemez mountains. Existing accommodations include 1,437 standard family-type dwellings, 225 sub-standard dwellings, barracks space for 600 military, 191 couple dormitory rooms and 1,063 bachelor dormitory rooms, plus expansionable trailer houses and private trailers. The sub-standard units will be liquidated as permanent accommodations become available, although the director anticipates a bit of hell in paradise: "Lots of these folks owning their own trailers prefer them to a house, however."

The areas where still-secret activities are going on are well guarded. As a matter of fact, it wouldn't be advisable to try any *coup* on the Los Alamos enterprise in general. Uncle Sam takes good care of it. Governor Thomas J. Mabry of New Mexico summed it up recently with the words, "These people are writing history that will be read thousands of years from now."

High (?) Freight Rates

More and more people in the West are getting a bit pained by the incessant yammering about the high freight rates that are holding back the West's development. One or two writers, who have worked themselves into strategic spots representing important national publications, have made a good thing of this "fight" between the West and the East. A few politicians have used the battle cry to good advantage.

The Rocky Mountain area provides dozens of examples of business firms that manage to do a thriving business all over their state, region, country and in world-wide markets. There are 48 Denver firms doing a thriving export business, with products ranging from stuff that can be mailed in a No. 10 envelope to heavy mining and milling machinery than which there is nothing heavier. Besides that, Colorado has beet sugar processors, cement companies, millwork factories, cracker factories and oodles of other enterprises putting out products of every weight and size and all doing very well, thank you. Are freight rates, then, so terrible?

NEW BELT SANDER FOR DRILL PRESS
Does Finishing Jobs Faster, Better

A new, simple, faster method for many surface finishing jobs on wood, metal, plastic and other materials has been announced by the OK Specialty Company of Chicago. The new finishing method takes the form of the OK Belt Sander, a drill press attachment.

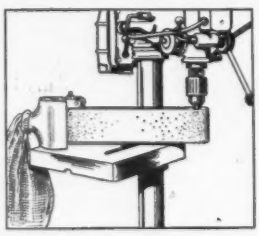
The new sanding device weighs less than 5 pounds. It is made up of an aluminum base with backing plate or platen, a driven pulley mounted on ground steel shaft and running on precision ground ball bearings, and cast aluminum driver pulley mounted on ½" ground steel shaft to fit into the drill press chuck.

The base of the sander is bolted to a drill press table. Merely by moving the drill press table, the attachment can be adjusted to handle sanding belts from 26" to 36" in length.

The sander takes belts from ½" to 3" in width. Two sanding belts, one coarse grit and one fine grit, are furnished with each attachment. The device comes assembled ready for use with any drill press. Most efficient performance is achieved at 3500 to 5000 RPM. The sander stands 5" high, and the base measures 10½" long by 3¼" wide.

Another time-saver on the job is chewing gum. Chewing gum may be used even when hands are busy; and under dust conditions helps to keep the throat moist—prevents "false thirst." For these reasons many plant owners make Wrigley's Spearmint Gum available to everyone.

You can get complete information from OK Specialty Company, 4655 N. Clark St., Chicago, Ill.



OK Belt Sander
Assembled, Ready for Action

AB-69

Every commodity that works up any sizable volume in interstate commerce soon encounters enough competition for the privilege of hauling it so that rates on that commodity come down to reasonable levels. This is true of the old standbys and of the newest products, including the thousands of cars of quick-frozen fruits being rushed from Delta and Grand Junction in Western Colorado across the country to Gerber's and other packing plants in the middle-west and eastern seaboard states.

Much of the "high freight rates" talk was deliberate smokescreen laid down by well-intrenched Western firms that had managed to get well established and didn't want to be bothered with other firms coming in to compete for labor, factory sites, white-collar workers and other things. some feared price competition, and still do. Politicians took up the cry, and the sort of magazine and newspaper writers who live on the volume of their output found here an "issue" worth playing up. There is a grain of truth in the "high freight rates" topic—and how that grain has been magnified, at a price!

Fair 'n' Warmer

Midsummer found the states up and down the Continental Divide having a wonderful time, businesswise. Times were good and nobody was denying it. Here and there touches of the old competitive spirit cropped up and everybody seemed glad to see business moving a little closer to a real buyer's market once more.

Heavy industry was busy with long-deferred replacement and maintenance projects, some still held back by the shortage of steel but others well under way.

Railroads, highways, pipelines and air transport facilities are being put into better shape in every part of the region. Fruehauf, PIE, Cummins Diesel and other big names in the trucking world have opened elaborate new terminals and servicing facilities in Denver to take better care of the freight-car size trucks that roll over the highways.

The old stuff about the mountain states needing wool-scouring and wool processing plants is being discussed once more, but nobody seems ready to do anything about it. An effort to arouse the mountain states to battle California on water rights issues crops up again, this time to support Arizona's efforts to use Colorado River water for the great central Arizona project. Roscoe Fleming, writing in the Denver Post, pulls out all the stops and intones, "California's purpose is to suck out Arizona's future like some gigantic parasite, leaving the baby state only the dry husk of what might have been."

Mining makes hay while the sun shines, with the biggest expansion program in several years to match the terrific demand that is running far ahead of prewar years in copper, lead, zinc, iron, silver, aluminum and other metals. The old mining camps are beehives of activity, with housing presenting a problem there just as it does in cities and towns all over the face of the nation.

Housing, not a regional but a national headache, remains the year's big unsolved problem. Construction costs are softening a little, but continued buyer resistance is needed to bring materials and labor costs down to workable levels. Denver's new mayor was snapped into rude awareness of the situation when impatient veterans called on him stating something must be done, and quick, to remedy the condition pointed out by the mayor's committee on veteran housing. That body found 16,000 married veterans of World War II actively searching for new living units.

The few hundred units being completed this summer will barely dent the situation. The new homes being finished aren't in the $5,000 to $6,500 class the veterans want. Only 5.3 per cent of the veterans can afford quarters that rent from $65 to $90. In other words, a really big building boom is just what the doctor ordered.

IF IT'S A VERY DIRTY SHIP, use Pacific Greasolve as a pre-cleaner. This is an excellent cold cleaner for removing oil, grease and dirt. Greasolve is an amber colored liquid, uses any ordinary petroleum solvent as diluent (1 part Greasolve to 7 or 8 parts solvent.) This dilution is safe for metal and painted surfaces and simple to rinse by water hose or high pressure hose.

FOR CLEANING OF AIRCRAFT EXTERIOR, use Pacific Airway No. 73. This cleaning compound is good also for the maintenance cleaning of motors and parts.

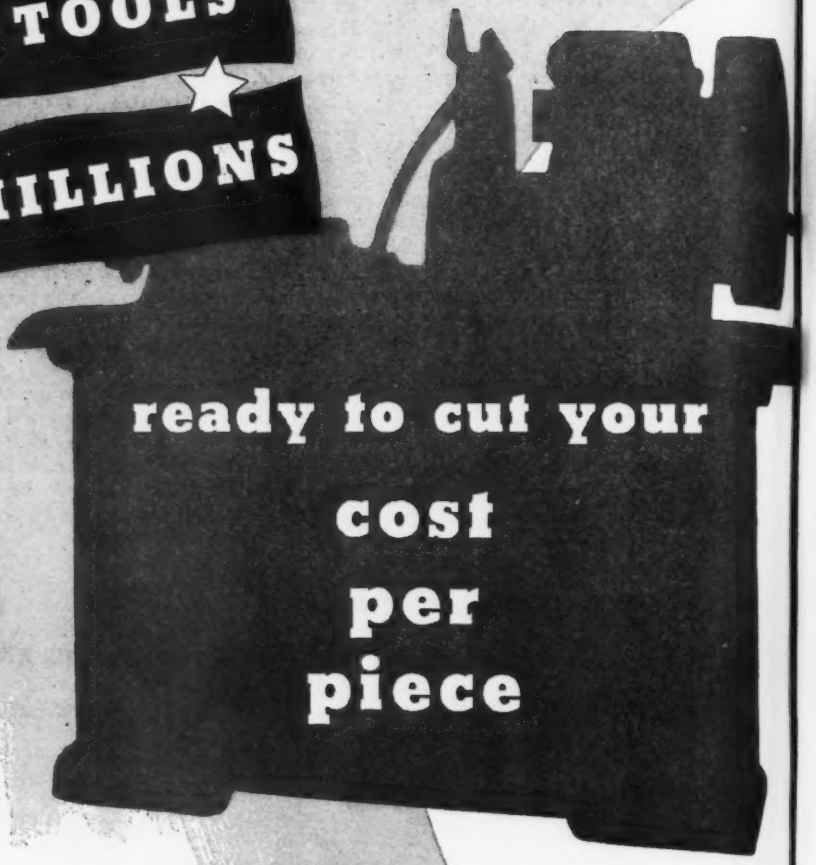
Your inquiries are invited.

PACIFIC CHEMICAL COMPANY

114 COLLEGE STREET, LOS ANGELES 12, CALIF. • CAPITAL 12101

A SUBSIDIARY OF AMERICAN-MARIETTA COMPANY CHICAGO, ILL.

BARGAINS IN SURPLUS TOOLS WORTH MILLIONS



ready to cut your cost per piece

GRINDER, Plain External Cylindrical
Norton Model C Plain. 6" Swing, 18" cc.
Sales Price: $986.00.
Location: Detroit, New York, Kansas City Regions.

War Assets Administration has the machine tools you need to cut costs—to modernize—to set up a new shop. Look at the big bargains shown. They are typical of scores of types, hundreds of models that must be sold at rock bottom prices—at least 25% BELOW USED MARKET.

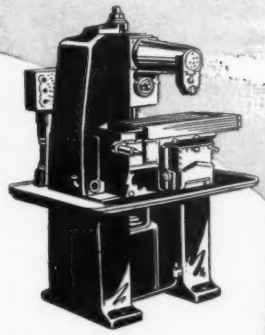
Listings of available machine tools are on file in all WAA Customer Service Centers. They include the major makes and types manufactured by the American Tool Industry. Plenty of models for both large and small shops. Initial payment as low as 15% when you use WAA's Deferred Payment Plan.

Get in touch with your nearest WAA Customer Service Center for details of current offerings. Bargains like this won't last—so act today!

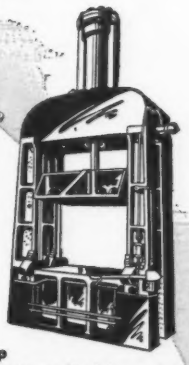
ALL TOOLS SUBJECT TO PRIOR SALE

THESE ARE TYPICAL OF CURRENT OFFERINGS

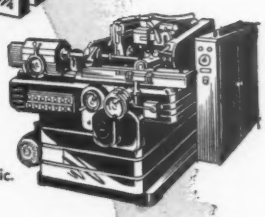
BORING MACHINE, Horizontal, Precision, Bridge Type
Ex-cell-o Model 2112-A, Single End, 6" Diameter Bore, 12" Table Travel.
Sales Price: $720.00.
Location: New York, Detroit Regions.



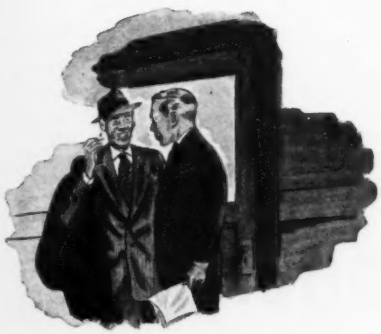
MILLING MACHINE, Bed Type, Horizontal Spindle
Cincinnati Model 08, Plain Automatic (Not Rise and Fall), 8" Table Travel, 6½" Width.
Sale Price: $459.00.
Location: Detroit Region.

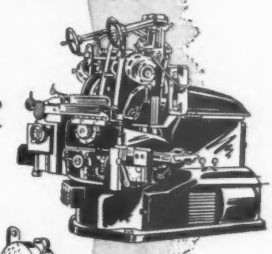


HAMMER, Air Drop
Chambersburg, Cecostamp Model ELPLANK. Bed Area 66" x 48"
Sales Price: $3684.00.
Location: Los Angeles, Grand Prairie, Kansas City Regions.



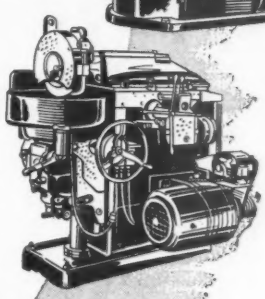
GRINDER, External Thread
Ex-cell-o Model 33, Plain, Automatic. 6" Diameter, 18" cc.
Sales Price: $1929.00.
Location: Detroit, New York, Kansas City Regions.



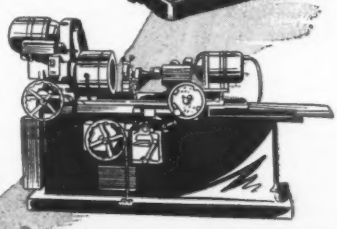


GRINDER, Gear Tooth
Pratt & Whitney Model 1679, Two Wheel Helical Gear, 10 11/16" Dia. 1¼" Face.
Sales Price: $3300.00.
Location: Kansas City Region.

CHECK THE COMPLETE LISTINGS AT ANY CUSTOMER SERVICE CENTER



GRINDER, Rotary Surface
Arter Models A1-8", A3-12", A3-16" Horizontal Wheel Spindles.
8½", 12" and 17" Table Diameters.
Sales Prices: $1022.00, $1380.00, $1494.00.
Location: Cincinnati Region.



GRINDER, Internal Cylindrical
Heald Model 72A3 Plain Hydraulic Feed. 11½" Swing, 12" Stroke.
Sales Price: $1327.00.
Location: Detroit, New York, Cincinnati Regions.

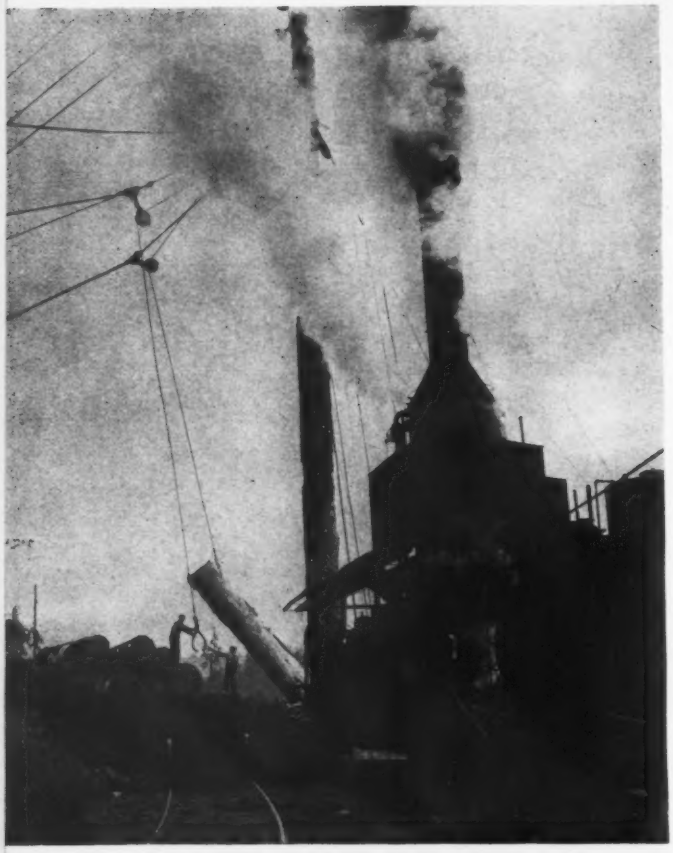
OFFICE OF GENERAL DISPOSAL

WAR ASSETS ADMINISTRATION

GOVERNMENT WAA SURPLUS

Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago • Cincinnati • Cleveland • Denver Detroit • Grand Prairie, Tex. • Helena • Houston • Jacksonville • Kansas City, Mo. • Little Rock • Los Angeles • Louisville Minneapolis • Nashville • New Orleans • New York • Omaha • Philadelphia • Portland, Ore. • Richmond • Salt Lake City St. Louis • San Antonio • San Francisco • Seattle • Spokane • Tulsa • CUSTOMER SERVICE CENTERS IN THESE AND MANY OTHER CITIES

686-4



• A steam loader is shown at left, loading giant logs on railway cars for shipment to processing points.

Proposed Pipeline Offers Relief for Fuel Situation

REGIONAL REVIEW
The Pacific Northwest

PACIFIC NORTHWEST — A new solution to at least a part of the fuel problem in the Pacific Northwest was suggested last month with the announcement that two organizations were studying the possibility of supplying the coastal cities with natural gas from the Canadian field in Alberta.

Named as the interested groups were Northwest Natural Gas, which installed the pipe line from Texas fields to Tennessee, and the El Paso Natural Gas Co., which is installing a 1,400-mile line from Texas fields to southern California.

The plan, as roughly outlined, provides first for a 900-mile pipeline across the Canadian Rocky Mountains from the fields in the vicinity of Lethbridge, Alta., to Vancouver, B. C. While the distance to be traversed by the pipe line is not great as pipe lines go, the topography of its proposed location rates well up among the most rugged in North America. Construction problems involved in such a project would undoubtedly run costs to a relatively high figure per mile of pipe line.

Second part of the program would be to construct another line extending down the Pacific Coast from Vancouver to Seattle and Portland, probably serving Bellingham and Tacoma en route, as well as the smaller cities of western Washington. Tentative estimates place the time required to complete the program at two years, one for the westward line and one for the southward line.

Where this would leave Spokane, which might also be able to utilize a natural gas supply, would probably depend upon the location of the Alberta-British Columbia line. If the pipe could be placed fairly close to the U. S.-Canada boundary, it is conceivable that a branch could be run 200-odd miles to Spokane.

In the meantime the hunt for deposits of oil and natural gas in western Washington is undergoing a burst of higher than usual activity with half a dozen wells going down over a considerable area. Although the geologic formations of western Washington and Oregon are of the same age as those of California which do produce oil and gas, and oil seepages have been found for more than 50 years along the coast of the Olympic Peninsula in Washington, none of the 40-odd wells drilled have resulted in finding either oil or gas in commercial quantities. The failures of the past have been attributed largely to the shattered formations encountered, and there are some who say that no commercial production can ever be obtained on that account.

On the other hand the Standard Oil Co. of California spent a considerable sum last summer in making extensive geophy-

sical studies north of Seattle, and this summer is drilling at Lake Stickney near Everett with equipment capable of going to a depth of 10,000 feet. The Union Oil Co. has also been embarked on an extensive geophysical survey program on the Olympic Peninsula, and has some 195,000 acres of land under lease. Drilling was begun by Union 16 miles north of Aberdeen about the middle of July. The exploratory well will be taken down to a depth of at least 3,000 feet.

In the same general location with Union is a group of five Texas oil companies drilling near Queets. This operation was down below 1,400 feet by the middle of July with unconfirmed reports indicating that signs of gas and oil are good at that depth. Three other operations are also active on the Olympic Peninsula. A Seattle organization known as the Harmony-Pacific Oil Company began drilling in Grays Harbor County during the month of July, and independent operators are drilling near Lynden and near Dungeness.

Barge Transportation Hearing

Barge transportation on the Columbia River was thoroughly examined during a more than week-long hearing before an Interstate Commerce Commission examiner on the subject of joint barge-rail rates for petroleum and grain between lower Columbia River ports and inland points of Oregon and Washington. The hearing was initiated by the complaint of the Inland Navigation Co., barge operator on the Columbia River, against 25 railroads in the Northwest.

SEATTLE—Northwest Wire Co. is planning construction of a second 40 by 80-foot addition to its factory here. The first addition is under construction at the present time. . . . Norge Machine Products division of Norge-Warner is hunting in the Seattle area for producers of stampings, screw machine parts, bolts and nuts in 100,000 to 200,000 unit volume per year. . . . Pittsburgh Testing Laboratory will establish a branch in Seattle for testing industrial materials and chemicals.

Inland asked that the railroads be required to publish joint barge-rail rates, and that the rates be established 20 per cent below the all rail rates between the same points for the same products. Inland was supported at the hearings by other waterway operators, the ports of Portland, Longview, and Vancouver, as well as upriver ports, wheat growers and petroleum users of the Inland Empire. Opposition to the proposal centered between the four main-line railroads serving the Northwest states, supported by Puget Sound ports and business interests.

Lines of alliance in the case are indicative of the local interests which exist throughout the Northwest and which have up to now effectively prohibited any unified effort toward industrial development and likely will continue to do so in the future. The factors are pretty much the same as those which finally blocked the organization of Pacific Northwest United after city and chamber of commerce officials in Portland and Seattle had made a strenuous effort to draw the Northwest together.

Called as a witness by the barge line, R. E. Hickson, chief of the Portland district engineering division, Corps of Engineers, testified that traffic on the Columbia River has already far exceeded the estimate prepared by the Army engineers prior to the construction of the river improvements. After nine days the hearings were recessed for 90 days to permit the preparation of exhibits by the defending railroad representatives. Although it was not included as a part of the testimony at the hearing, the Corps of Engineers announced that traffic through the locks at Bonneville dam, 30 miles above Portland on the Columbia River, for the first six months of 1947 amounted to 600,983 short tons.

SPOKANE—Baker Safety Fire Ladder, Inc., manufacturer of a new aluminum ladder, has leased for five years the old Crowley property. . . . Industrial Service, Inc., has been incorporated by John R. Campbell for the purpose of testing, manufacturing, financing, and marketing newly developed drugs and chemicals. . . . Suiter Furnace Co. has placed a new building under construction.

About 88 per cent of all upstream traffic through the lock was gasoline, less than 8 per cent was diesel oil, and remaining cargo was classified as sand and gravel, rafted boom sticks, and stove oil. Downstream traffic was 96 per cent rafted logs and the remainder hog fuel. The chief downstream cargo, wheat, was not carried on the river during June since the 1947 harvest was just beginning at the end of the month.

Another newsworthy item in Columbia River transportation circles during the month of July was the launching of a new and specially designed tugboat at Pasco, Wash., by the Columbia Barge Lines. Phil Mitchell, president and general manager of the locally owned river transport organization, is the designer of the 100-foot tug which is said to be the most modern on the river. The company has also begun work on the first of several wheat barges at its shops on the Snake River.

Industrial Expansion

Commenting on industrial expansion in the Pacific Northwest during the first quarter of 1947, William H. Flood, regional economist for the Department of Commerce, says in his quarterly survey of business trends, "A departure from the prewar custom and characteristic of our regional economy is taking place. Now emphasis is on adding more in value and qualities to our basic raw materials before sending them to market.

"Current expansions are taking place in this direction in the pulp and paper industry. More paper and converting capacity is being added. Lumber and millwork industries add more useful qualities to their products by shaping and chemical treatment. Agricultural and other food production has been increasingly diverted to commodities channelled into canned and frozen food packages as compared to former bulk staple crops."

The fact that conscious efforts are being made to persuade industry to add more value to the natural resources is seen quite frequently both in talks before industrial groups and in the gradual development of various industrial plants. For instance Dr. Eri B. Parker, director of the institute of technology at Washington State College, in a talk before the industrial committee of the Spokane Chamber of Commerce emphasized the production of finished goods in aluminum and magnesium. At a meeting of the Pacific Northwest Trade Association last April one speaker pointed out that more than 65 per cent of the hydroelectric power generated in the Northwest was being frozen into aluminum pig and exported to other parts of the United States for further processing.

PORTLAND—Continental Can Co. has announced plans for a new plant here to serve the food packing industries of the lower Columbia and Willamette rivers. . . . Swan Island shipyard, bone of contention between the Port of Portland and War Assets Administration, will be offered to manufacturers and warehousemen on a multiple tenancy basis. The Kaiser Co. is at present operating there, but on a month-to-month basis. . . . California Bag & Metal Co. offered WAA $300,000 for the ship repair yard formerly operated by the Willamette Iron & Steel Co. CB&M plan to make a permanent ship repair yard of the property.

While small producers of finished aluminum goods have been rapidly increasing in numbers during the past two years, several of the best examples of increasing the value of raw materials are in the lumber and millwork fields. At Coos Bay, Ore., the Evans Manufacturing Co. conducts a lumbering organization that turns out only finished products. Despite the fact that the company could probably have made a considerably larger net profit from the sale of rough lumber during the present lumber shortage, all lumber cut in the logging operations is processed into one of a half dozen finished products, and a sizable laboratory is maintained to work

(Cont'd on page 72)

McDonald
SAND and SHOT-BLAST HELMET

Provides complete protection in all operations requiring sand or shot-blasting.

LIGHT—COOL—COMFORTABLE

Duralumin helmet—anodic covered for shot-blasting—is suspended at six points, with adjustable, replaceable, leather headband.

POSITIVE PRESSURE

Air feed is distributed over an unbreakable look-out glass to prevent fogging. Cover cape makes perfect dust seal. Break valve, mounted at side of belt, may be set at any pressure. Write for bulletin and prices.

B. F. McDONALD CO.

Manufacturers & Distributors of Industrial Safety Equipment

Safety FROM HEAD TO FOOT

5100W South Hoover St.
Los Angeles 37, Calif.
Other offices in San Francisco and Houston

(Cont'd from page 71)

on the development of new and improved products which may be added to the line.

At Longview, Wash., the Long-Bell Lumber Co. is expanding its production of unpainted furniture to utilize an increasingly larger percentage of its lumber production for finished goods. The Northwest is becoming more and more aware that the export of "Jap Squares" is a barrier to further expansion by the timber using industries.

The quarterly survey of business trends previously quoted also points out another interesting development which would appear to provide a sound base for future industrial growth. "Aside from expanding existing industries," says the report, "many comparatively small manufacturing operations have been established. Some are an outgrowth of ideas created by technicians and others during the war. Prominent in a list of new items manufactured are farm machinery, plywood boats, marine hardware, navigational aids, screw products, fishing tackle and other sporting goods and apparel, electrical appliances, germicides, and fabrication of aluminum products. Local and regional markets have been discovered permitting these businesses to get started now. More distant markets ultimately can be developed."

New Products

During the past month or two a surprising number of new products appear to have developed into various stages of activity. Among them are several in Bellingham, Wash., including a spring and axle assembly invented by O. J. Wolfe, a local resident, and taken over for production by the Northwest Manufacturing Co. A more unusual organization planning construction of a plant in Bellingham is Algaederm, Inc., which will process Puget Sound kelp to produce a medicinal salve for various skin irritations. In Portland the Manufacturers Engineers Co. announced the acquisition of a plant for the production of a newly developed powder-powered tool for driving anchors into concrete and steel walls.

On the somewhat more prosaic side the Apex Wood Products Co. has been formed in Portland with production facilities in Salem, Ore., for the manufacture of prefabricated greenhouses, trellises and other wood garden products. Lavelite Products Co., of Tacoma, has secured the permission of the Cowlitz County commissioners to set up pumice stockpiling and shipping facilities near Castle Rock, Wash. Utilizing pumice mined on Mt. St. Helens, the company is producing building materials at Tacoma and will use the shipping and stockpiling facilities as a part of its operation.

Another new manufacturing operation, and the first one to occupy space in the war-surplus Boeing aircraft plant at Renton, Wash., is the Orillia Body & Machine Works. Using an engineering design and dies developed by the California Body and Trailer Manufacturers of San Francisco, Orillia is planning to produce aluminum and steel truck bodies at the rate of 17 per week. War Assets Administration announced that it had available for rent about 400,000 square feet of space suitable for manufacturing purposes in the Boeing plant at Renton. About three-quarters of the floor space in the plant will be retained by the Army, Navy, and WAA for storage purposes.

Entrance of the airplane into the lumber industry and the utilization of aircraft in various operations has been quite rapid this year. Shipment of plywood from Oregon to Utah and prefabricated houses from Seattle to Alaska has been mentioned

THOMAS HEAVY DUTY INDUSTRIAL TRAILER

The "General" is Thomas' heavy duty Industrial Trailer . . . one of the leaders in the Thomas line that includes hundreds of different 2- and 4-wheel trucks, trailers, casters and wheels for every purpose. Write for special trailer catalog or general catalog MC.

Stocks Carried by These Western Representatives

W. T. BILLARD CO.
734 E. 3rd St.
Los Angeles 13, Calif.

GLEN L. CODMAN CO.
10521 Pearmain St.
Oakland 3, Calif.

HYSTER SALES CO.
P. O. Box 3956
Portland 8, Ore.

- Capacity: 4000-5000 lbs.
- Made in 4 sizes
- Fast, safe automatic coupling or manual coupling
- One piece welded steel frame
- Many special features

Manufactured by THOMAS TRUCK & CASTER COMPANY, 4741 MISSISSIPPI RIVER, KEOKUK, IOWA

before, but there are also several operations in connection with more basic lumber production problems, those of growing the timber crop. In Idaho an infestation of tussock moth which threatened destruction of 413,000 acres of timber was successfully halted by spraying the timber lands from planes with 392,000 gallons of DDT and fuel oil solution. James Evenden, entomologist, reported that ground crews were unable to find any trace of living moths after completion of the aerial spraying project.

In western Montana an aerial fire fighting project has not been quite as successful. Two fighter planes and a Superfortress have been employed on an experimental project of dropping water-filled bombs on forest fires. While forestry officials expressed enthusiasm as to the possibilities of the method, they admitted that there are many problems to be solved before it can be used as a standard procedure.

More directly concerned with the production problems of the lumber industry, a remote operation of the Camas Valley Lumber & Logging Co. was supplied by air with spare parts necessary to resume the work. Using the parachute supply method developed to a fine art during the war, a set of valves was delivered to a power unit 50 miles east of North Bend, Oregon.

Speaking of North Bend, the city fathers last month told officials of West Coast Airline that unless the airline schedule was changed to list North Bend only instead of the present listing of Coos Bay-North Bend the contract for use of the air field would not be approved. Ever since a move by residents of Coos Bay (three miles away) to incorporate both municipalities into a single city, North Bend has been busy upholding its individuality.

Conventions

(Cont'd from page 57)

Dr. M. J. Copley of the Western Regional Research Laboratory in Albany, California, "Recent Developments in the Western Regional Research Laboratory."

Dr. M. S. Dunn of the University of California in Los Angeles, "Proteins and Amino Acids in the Food Industry."

Dr. A. K. Balls of Enzyme Research Laboratory, "Newer Developments in Enzyme Research."

Western Chemical Market Research Group

Jerry Norton of Seattle, Washington, "The Western Plastics Industry as a Consumer of Chemicals."

Seven other authorities will speak on the situation in major Western industries.

Analytical Group, California Section, American Chemical Society

"Evaluation of Gels by Measurement of Shear Modulus," by H. S. Owens and W. D. McClay of Western Regional Laboratories.

"Application of High Frequency Heating to Biological Systems of Industrial Interest," by T. M. Shaw of Western Regional Laboratories.

"Application of Reflectance Spectrophotometry to Measurement of Color in Foods," by E. J. Eastmond of Western Regional Laboratories.

"An Electronic Method for the Determination of Bromine Numbers," by H. D. DuBois and D. A. Skoog of the California Research Corporation.

"An Analytical Method for the Heat of Combustion of Gasoline," by R. L. LeTourneau and R. Matteson of California Research Corporation.

"An Improved Apparatus for Molecular Weight Determinations," by R. Matteson.

"Current Spectrographic Methods of Non-Metallic Sample Analyses," by C. E. Harvey of Applied Research Corporation in Glendale.

"The Determination of Launder-o-Meter Detergency," by J. J. Morristoe of Oronite Chemical Company.

"Ultramicro Spectrophotometer Cells for Millimicrogram Scale Analysis," by P. L. Kirk of the University of California.

"The Photoelectric Measurement of a Color Index of Liquid Products," by L. Lykkens of Shell Development Company.

"Interferences in the Determination of Alkali Metals by Flame Protometry," by T. D. Parks of Shell Development Company.

"A Flame Photometer for the Beckman Quartz Spectrophotometer," by G. L. Locker, A. O. Beckman and W. W. Blalock of National Technical Laboratories.

"A Recording Quartz Spectrophotometer," by H. Cary of Applied Physics Corporation.

(Cont'd on page 74)

W. C. HARDESTY CO. · INC.

are manufacturing these products in

LOS ANGELES

ANIMAL FATTY ACIDS · CORN OIL FATTY ACIDS

COTTONSEED FATTY ACIDS · SOYA FATTY ACIDS

OLEIC ACID, RED AND WHITE · STEARIC ACID

GLYCERINE · HYDROGENATED FATTY ACIDS

LARD OIL · ACIDLESS TALLOW OIL · PITCH

You can operate economically with smaller inventory because prompt delivery on these items will be expedited through our Los Angeles plant. Planned for complete service to our customers in the West.

W. C. HARDESTY CO. · INC.

LOS ANGELES · CALIFORNIA

Represented in the West by

GRIFFIN CHEMICAL COMPANY

1000 Sixteenth Street
San Francisco

555 South Flower Street
Los Angeles

Motor-operated
Bench Positioner
Model IP
capacity 100 lbs

Better Your *PROFIT* Position with a better *WELDING* Position

When you position the work for *downhand* welding with a Ransome Positioner, you gain these advantages:

- Production increases up to 50%.
- Labor savings up to one-half.
- Better quality work, with smoother, stronger welds.
- Reduction in welding rod waste 5% to 7%.
- Reduction in crane service and accident hazards.

No matter what your positioning problem may be, Ransome can furnish equipment to solve it. Send for Bulletin 210B.

Model 400 Positioner—capacity 20 tons

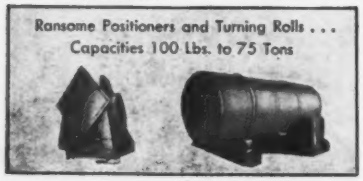
Industrial Division

Ransome MACHINERY COMPANY
Dunellen, N. J.

Subsidiary of
WORTHINGTON
Pump and Machinery Corporation

Y-7-8

Ransome Positioners and Turning Rolls . . .
Capacities 100 Lbs. to 75 Tons



(Cont'd from page 75)

"Mass Spectrometry," by H. W. Washburn of Consolidated Engineering Corporation.

"Industrial Applications of Absorption Spectroscopy," by R. R. Brattain of Shell Development Corporation.

Petroleum Group, California Section, American Chemical Society

Dr. Gustav Egloff, "Chemistry and Engineering in the Oil Industry."

E. V. Murphree of Standard Oil Development Company, "Applications of the Fluidized Solids Technique."

Additional speakers will be announced. One days program will be devoted to New Products.

Programs to Be Announced

The California Section of the American Institute of Chemical Engineers has not announced its program. And plans for the program of the Pacific Insecticide Institute and of the American Society for Testing Materials are still in preparation. Dr. Stewart says that there will be additions to the programs of all participating groups.

Difficult Calculus Problems Solved by Ingenious Machine

Through funds authorized by the State Legislature of approximately $250,000 the engineering school of the University of California at Los Angeles has purchased the General Electric differential analyzer — first calculator of its type to be built for commercial use.

Said to be an engineering innovation in that it is possible to accomplish in two weeks work equivalent to 17 man-years of effort, the machine consists of an interconnected system of shafts, motors and gears with an integrating function. The machine employs mechanical elements for addition, subtraction, multiplication and division, and electro-machanical elements for more complex functions.

When it is realized that the analyzer makes it possible to multiply two 10-digit numbers in 1/10,000 of a second, and that the machine can count to 1,000,000 in one second, it is evident that its value in the engineering field is unlimited.

In the military world the analyzer has its greatest usefulness in that it is possible to trace the course of a guided missile, bullet or rocket on every point of its journey. An expert mathematician sets up a system equation to feed the analyzer and the resultant curve tells the story. It is also possible to forecast weather — the amount of fog to be encountered by planes and amount of ice formation within a certain time or height which will form on the wings of a plane.

Although the differential analyzer operates mechanically, it is electrically controlled. It will be available to California utilities and industrial organization and to engineers from private industry who wish to solve involved scientific problems

CUT PRODUCTION COSTS *with a* SHOPLIFTER

One man can handle heavy dies up to 500 pounds alone. Easily moved about. Also handy for loading and unloading trucks and miscellaneous lifting jobs. Platform 24 in. x 24 in. Lift of platform 4 ft. 6 in. Price $157.50 (foot operated floor lock optional, $10.00 extra). Heavier capacities available up to 5000 pounds.

PROMPT DELIVERY
Full freight allowed.

ECONOMY ENGINEERING CO.
2685 West Van Buren Street
Chicago 12, Illinois

in heat transfer, electrical circuits, or design.

It was this analyzer which was used by scientists during the war in the study of problems involving radar, hydro-dynamic flow, rotating machinery, airplane stresses and speed governors. Trajectory data was obtained from the analyzer for the firing of V-2 rockets at White Sands, N. M.

Traveling Wave Radio Tube Discovery

Development of a traveling wave radio tube which could amplify simultaneously 250,000 telephone conversations or 300 black and white television broadcasts or 100 in color has been announced by a Stanford University scientist, Dr. Lester M.Field. It doubles the ability of earlier models of the traveling wave tube to cover a wide range of frequencies and handle a huge volume of radio traffic.

He and his staff, working under a grant from the Office of Naval Research, also are on the way to production of a tiny tube to operate at three times the frequency of the preesnt model.

The traveling wave tube differs from ordinary radio tubes in that it provides a system of lengthy exposure of microwaves to a stream of electrons from which the microwaves build up their energy.

The new tube will facilitate commercial expansion of television since the vast number of frequencies it covers provide enough room for many television stations to operate simultaneously without interfering with each other's signals. It also provides a feasible method through which long distance telephone lines, with their heavy maintenance problems, can be replaced by a chain of radio relay stations in which the traveling wave tubes will provide ample amplification and room for simultaneous transmission of large volumes of telephone and radio traffic.

The tube overcomes the fundamental law governing all other known tubes which restricted them to low amplification if they had room for many channels, nor give enough channels if they were high in amplication ability.

Beetle Perils Pine Forests

Colorado is in danger of losing most of its ponderosa pine forests unless everyone is alerted to the necessity for combatting the vicious Black Hills beetle, F. Herbert Gates, entomologist in the state bureau of plant and insect control, has warned.

The beetle, which destroyed the best pine forests in the Black Hills before invading Colorado, is described by Mr. Gates as one of the most vicious insects the state ever had to contend with.

A survey of 1,000,000 acres in the Denver park system found 257 trees infested.

Geneva Freight Rate May Be Modified

Some indications are beginning to appear that the ICC may slice off part of the recent reduction on the Geneva steel rate to the Pacific Coast, but the Commission is standing pat against any nationwide review of freight rates on steel.

After a conference in Denver last month with railroads and steel producers, Chairman Clyde Aitchison of the ICC recommended a hearing in San Francisco on the Geneva rate in December before making final the 22c reduction tentatively granted several months ago. The new rate has been protested by Kaiser and Colorado Fuel & Iron Corporation.

The Western States Council mapped out plans for supporting the reduced Geneva rate at a meeting of the board of directors in Salt Lake City in August. This organization has led the way in working out postwar steel developments in the West, and reduced rates from Geneva have been part of its program.

Union Pacific, Great Northern, Rio Grande and Western Pacific are the railroads in favor of the new Geneva rate. It is understood Southern Pacific and Santa Fe were in favor of a reduction, but did not think it should be as much as 22c. Meanwhile Kaiser has asked for proportionate adjustment of his rates from Fontana to the Pacific Northwest.

JOHNSON XLO Wire

JOHNSON WIRE — All types of high carbon—bright, tinned and alloy coated wire—round, half round, flat, special shapes

JOHNSON XLO MUSIC WIRE — .003" to .200".

JOHNSON SPECIAL ALLOY COATED WIRE — .003" to .080".

Warehouse stock:

11641 MONA BLVD.
(Phone Kimball 2959)
Los Angeles

JOHNSON STEEL & WIRE CO., INC.
WORCESTER • MASSACHUSETTS

50% OFF
Your Maintenance Cleaning
BILL!

With mechanized OAKITE STEAM-DETERGENT CLEANING as the backbone of your maintenance cleaning program, you can slice 50% off your manual cleaning costs. Oakite Steam-Detergent Cleaning is fast, extremely efficient.

All you need is the inexpensive Oakite Steam Gun, solution container, hose. Combines heat, mechanical force and chemical penetration of grease and dirt.
For full information, confer with your local Oakite Technical Service Representative.

OAKITE PRODUCTS, INC.

LOS ANGELES (12).....1001 East First St., Tel. Madison 1544
SAN FRANCISCO (7).....115 Townsend St., Tel. Douglas 2-5640
OAKLAND (7).....1505 Wood St., Tel. GLencourt 1-2750
SAN DIEGO (1).....310 Fifth Ave., Tel. Franklin 0312
SEATTLE (4).....95 Connecticut St., Tel. Main 1207
PORTLAND (9).....1238 N. W. Glisan St., Tel. Broadway 1281
STOCKTON.....401 W. Weber Ave., Stockton 6-6564
SPOKANE (8).....E. 41 Gray Ave., Tel. Riverside 8063

OAKITE Specialized CLEANING
MATERIALS • METHODS • SERVICE • FOR EVERY CLEANING REQUIREMENT

Reclamationists See Gains Despite Appropriations Cuts

Reclamation is now believed more firmly established as continuing national policy than it ever has been before.

REGIONAL REVIEW
The Wasatch Front

SALT LAKE CITY.—The weeping and wailing over the "slaughter" of the reclamation program by the last Congress is beginning to die down in Utah.

In fact, many reclamationists, after reappraising the picture, are coming around to the view that they made some substantial gains with the lawmakers, even though they didn't get all the cash they wanted.

This idea was fostered and encouraged by U. S. Reclamation Bureau officials themselves at a recent staff conference in Salt Lake City. Commissioner M. W. Straus, for example, noted that the Congress confirmed the bureau's specific projects and reaffirmed the basic principles of the program.

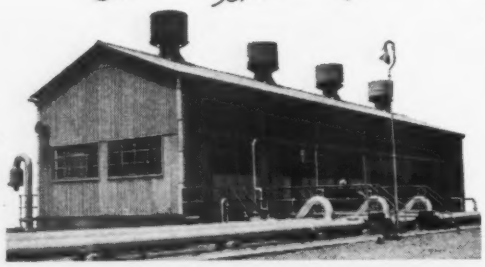
In brief, he took the position that reclamation is now more firmly established as a continuing national policy than it has ever been before. Assistant Secretary of Interior W. E. Warne was of the same mind. So was Sen. Arthur V. Watkins, Utah Republican, who has been an active promoter of reclamation projects for many years.

Another prop to this optimistic frame of mind was the fact that the governors of the nation unanimously endorsed a full-scale program of self-liquidating reclamation projects during their recent conference here.

On the money side the bureau requests were slashed by some $40,000,000. But with holdover funds, it has slightly more than $200,000,000 to spend during the current fiscal year. And members of Congress indicated during the reclamation debates that requests for deficiency appropriations would be kindly received if particular projects run short of funds.

The biggest stumbling block to any new water and power developments in the upper basin of the Colorado River is the inability of the states to agree on a division of the water. Optimistic statements as to progress toward a compact are common. But tangible supporting evidence is woe-

Calsteel Buildings



INDUSTRIAL BUILDINGS

Shops — Compressor Houses
Warehouses — Pump Houses
Loading Docks — Canopies

ALL SIZES—ALL TYPES
Designed — Fabricated — Erected
To your particular requirements

Calsteel Buildings

Designed and produced by qualified engineers and experienced fabricators are *low in cost* and *rapidly completed*. Their bolted structural steel frame with simple attachment of exterior sheets simplifies changes and their uniformity of design permits economical future expansion as needed.

For more specific information . . . call or write

CALIFORNIA STEEL & CONSTRUCTION CO.
3833 Medford St. ANgelus 2-4194 Los Angeles 33

Complicated Jobs are Easy at De Young's

We specialize in turning out complicated machined jobs. We can turn out to your specifications any item from 1/16 to 3" bar stock or can swing castings and forgings up to 12" diameter. Our operators are highly skilled mechanics. We will be glad to figure your next machining job. Just give us a call—

Phone THornwall 1131

TURRET AND ENGINE LATHE PRODUCTS

You Can Depend On

De Young Bros. MACHINE SHOP
8721 METTLER ST. LOS ANGELES 3, CALIFORNIA

fully lacking. Some realists, in fact, are coming around to the view that the states will never be able to agree on allocations and that it will have to be done eventually by court or congressional action.

Public discussions of the problem have been carried on for years in an unreal atmosphere. And the general public has been led to believe, or has been permitted to continue in the belief, that there is an abundance of water which does not actually exist. Those who know better are reluctant to face and discuss the bad news.

The 7,500,000 acre feet alloted to the four upper basin states under the Colorado River compact has shrunk during the past two decades to about 1,300,000 acre feet in the absence of expensive, long-term storage.

And to divide 1,300,000 acre feet of water among four states that have been thinking in terms of five or six times that amount isn't going to be an easy task.

Here, briefly, is the situation confronting the upper basin:

Average flow of the river at Lees' Ferry for the decade 1931-40 was 10,176,000 acre feet. The compact requires that 7,500,000 acre feet of this be passed on to the lower basin. The Mexican treaty gives that country a prior right to another 1,500,000 acre feet. The consumptive use of projects already under construction, mostly in Colorado, will be in the neighborhood of 575,000 acre feet. Indian lands have a claim to some 300,000 to 400,000 acre feet. When all the deductions are made, the upper basin has around 1,300,000 acre feet to divide, possibly less when the Mexican treaty obligation is distributed.

The labor force in the Salt Lake City metropolitan area increased from 75,000 in March, 1940 to approximately 97,000 in April of 1947, according to an estimate of the U. S. Census Bureau based on sampling. During the same period the number actually employed rose by 30,000, or to 94,000. Employed women increased from 16,000 to 27,000, or 69 per cent.

The numbers employed squares closely with the estimates of the state department of employment security. But the two sets of figures are a considerable distance apart as to unemployment. The Census Bureau estimates 3,000 unemployed in April, 1947. But the department of employment security for that month was about 7,000.

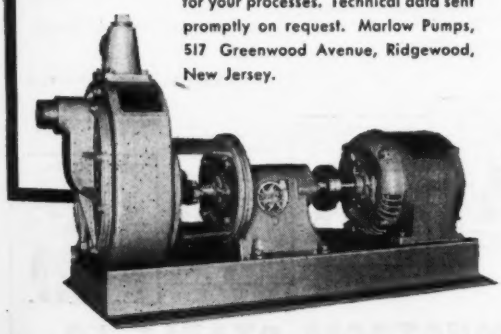
Utah's new labor law, which among other things bans a strike until such action has been authorized by a secret ballot, is undergoing its first tests. Two contracting firms have brought unfair labor charges against unions for unauthorized strikes and coercion of non-striking employees. The charges are being heard by the state labor relations board but it is probable that the cases will go to the courts eventually to test constitutionality of the act.

The proposed two-cent gasoline tax increase which the last legislature didn't pass has been revived as a hot political issue. Governor Herbert B. Maw, who unsuccessfully sought enactment of the increase, has come out with a charge that the oil companies have taken all or most of the two cents in the form of price increases to keep the price structure in line with nearby states which did increase the tax. He has asked the U. S. Attorney General to look into pricing practices and indicated that he may call the legislature into special session if the investigative approach produces no results. Oil companies deny the governor's charges and say the increases were brought about by increased costs.

Right in the heart of the zinc, lead and copper country, aluminum has snagged off the biggest roofing job in the intermountain area for many years. The old roof of the Mormon Tabernacle, constructed of tin shingles coated with tar, has been replaced by 36,000 pounds of 20-gauge aluminum sheet which is "guaranteed for 100 years or more," according to Jed L. Ashton, president of the contracting firm in charge of the installation. Strips which covered the curved ends of the domed building were 42 inches at the bottom and tapered to eight inches at the top. By replacing the old roof with aluminum, the stone walls of the historic building are now supporting between 35 and 50 tons less than formerly.

THIS CENTRIFUGAL PUMP LIFTS HIGH PRIMES ITSELF

Marlow Self-Priming Centrifugals prime *automatically* on suction lifts as high as 25 feet. Handle water, coolants, chemical solutions, volatile fluids, liquids containing abrasives, liquids with viscosities to 500 S.S.U. Do not vapor-lock. 1½ to 10-inch sizes; 15 to 3500 GPM. Investigate Marlow pumps for your processes. Technical data sent promptly on request. Marlow Pumps, 517 Greenwood Avenue, Ridgewood, New Jersey.



MARLOW PUMPS

Manufacturers of Quality Pumps Since 1924

Warehoused for West by GEORGE M. PHILPOTT CO.
1160 Bryant Street San Francisco, Calif.

Coal Handling for Small Heating Plants

SIMPLIFIED, CLEAN ECONOMICAL

—with a Detroit Electric Hoist, Coal Bucket, and a short length of monorail.

Installations are paying for themselves in actual dollars saved.

Added advantages; Ease in Handling, Time Saved, Clean Surroundings.

Get the facts from Detroit Hoist Bulletin No. 805.

DETROIT HOIST & MACHINE CO.

8215 MORROW ST., DETROIT 11, MICH.

LABOR
and the
INDUSTRIAL WEST

Getting Labor Cooperation On Engineering Methods

ELIMINATION of obstacles which prevent full cooperation between labor and management in establishing industrial engineering practices does not mean seeking simply one correct answer, but rather finding a series of solutions that fit complicated situations, according to H. P. Melnikow of San Francisco, director of the National Labor Bureau.

Speaking before the Northern California Chapter, Society of Industrial Engineers, he said that the question which labor is entitled to ask and have answered is "Why?," when management institutes engineering methods.

Since old-fashioned management is only convinced with difficulty to introduce the best engineering methods, why should it be surprising that workers have to be sold on the introduction and continuation of engineering methods, he asked. Furthermore, in his opinion, the economics involved in the application of engineering methods to industry have not been reasoned out.

"Industrial engineers have not, on the whole, thought through the economics of distributing and marketing the flood of production which the widespread application of engineering methods would mean," he asserted. "Until the industrial engineer can conceive a satisfactory solution to this economic problem, he cannot expect to secure widespread adherence to his program on the part of either management or labor.

To substitute labor-management cooperation for labor-management friction Mr. Melnikow suggested consideration of the following important elements from the labor viewpoint:

1. To begin with, just as it would be a mistake to force engineering methods upon an unwilling management, so it is a mistake to force engineering methods on unwilling workers. If it is possible to sell management, then it is also possible to sell labor.

2. In order to sell labor, it is necessary that the cards be on the table. Far too often has the introduction of engineering methods been treated as mysterious magic which only the minds of the initiated could grasp and the uninitiated were expected to swallow on belief rather than on conviction. Far too often was this done in order to conceal the deleterious factors

Now Available

(All Government regulations now removed)

TWINE

TUBBS MANILA TWINE

PACORD

(Manila twine with kraft paper cover)

Once again we are able to manufacture twine and we are now prepared to supply your requirements to meet every tying need. Specify Tubbs Manila or Pacord to your supplier for better tying at lower cost.

Manufactured by

TUBBS CORDAGE COMPANY

SAN FRANCISCO SEATTLE
PORTLAND LOS ANGELES CHICAGO NEW YORK

The one-armed paper hanger is slow.... but the ONE-HANDED MARKWELL TACKMASTER is TRIGGER FAST!
EASY OPERATION — one hand does it!
• Snug stapling point — staples can be driven along narrow edges and also reach inaccessible places.
• Uses 2 sizes staples for light and heavier work.
• Complete with Tack (Staple) Remover.
Immediate Delivery
Please Place Your Order Now
DISPLAY
MISCELLANEOUS
SHIPPING
INDUSTRIAL

FISHSTROM STAPLE CO.

LOS ANGELES OAKLAND SAN FRANCISCO

of such systems as the old Bedaux methods or others in which increasing productivity meant a lessened compensation per unit of production. In other instances, far too often was the base of the entire system kept as a secret so that if necessary the base could be shifted without the workers being informed of the changed method of computation.

3. Scientific management has been applied with the zeal and often fanaticism of bigotry rather than a realistic open-mindedness. The industrial engineer has in the past resented anyone questioning the details of the application of the principles of industrial engineering, let alone the glorious panacea of which he was the prophet. The resentment of management is sometimes particularly sharp when labor is fairly adequately represented. While some managements are delighted to have intelligent leadership over all employees, others resent adequate representation in leadership and frankly admit it is because the representatives are "too damn smart."

4. The plan for application of industrial engineering in any given situation must be as simple as possible and presented with complete candor and truth. To state that increased productivity will result in greater hourly, weekly or annual earnings, while withholding the information that will result in lesser pay per unit is to tell only a partial truth.

World War II has given a clear-cut demonstration of what volume production can accomplish. The application of engineering methods resulting in volume production has substantial benefits for capital and management even in the face of the same or higher unit labor cost, provided that the products can be marketed. The savings on overhead, marketing, costs and so on, are in a good many instances greater than any reasonable saving in labor cost which can be envisaged. All such factors must be clearly faced and explained; the failure to tell the entire story justifiably inspires the workers with a suspicion of the entire plan for the introduction of engineering methods.

Seminars on New Labor Legislation

An intensive two months' program of discussion on collective bargaining and personnel policies in the light of the new legislation, designed especially for personnel and industrial relations directors and trade association executives is announced by the School of Management, Golden Gate College, San Francisco, from September 4 through October 23.

Management speakers include Paul Eliel, consultant; President Frank Foisie of the Waterfront Employers Association; Pembroke Gochnauer, general manager of the San Francisco Retailers Council; Alexander R. Heron, vice-president for industrial relations of Crown-Zellerbach; Kenneth Shaffer, personnel manager, Standard Oil; William B. Tyler, vice-president C. & H. Sugar; Almon E. Roth.

Labor and educational men include Cornelius J. Haggerty, secretary State Federation of Labor; Mervin Rathbone, secretary, State CIO Council; Matthew O. Tobriner, AFL attorney; Clark Kerr, director Institute of Industrial Relations, University of California; John P. Troxell, director, Division of Industrial Relations, Stanford Graduate School of Business.

Weakening Their Bargaining Positions

Labor unions who follow the course of not availing themselves of the new labor relations act in the future, and will not file the affidavits with respect to communism and other reports which are necessary before a union may use the NLRB, are weakening their collective bargaining positions, according to the Merchants & Manufacturers Association, Los Angeles, for the following reasons:

1. Such a union would still be subject to the unfair labor practices listed in the new law. It still could not restrain or coerce an employee in the exercise of his right to join, or to refrain from joining, a labor organization. It could not engage

For duty in ANY part of Your Plant... the SHARPE Duplex Portable Maintenance Paint Spraying Unit

DEPENDABLE • SAFE • EFFICIENT

This "SHARPE" Portable Compressor Unit brings the Air RIGHT TO THE JOB—instead of bringing the job to the air . . . Many man-hours a day may be saved with this rubber tired, easily hauled around unit.

There is a "SHARPE" Portable Unit to fit YOUR particular need — write us TODAY for illustrated Catalog No. WI-645 for full details and price—No obligation.

Sharpe MANUFACTURING COMPANY

1224 Wall Street PRospect 4368

For Contractors and Industry

GOODALL "SUBWAY" AIR HOSE

AIR HOSE TAKES A BEATING! — That's why sturdy hose such as Goodall "Subway" with its wrapped duck construction, oil and moisture resistant tube, and tough red jacket lasts longer. It's designed to resist gouging, abrasion, and rough usage. Next time get SUBWAY, the air hose recommended for all pneumatic tools including concrete breakers, rock drills, rivet hammers, chipping hammers, etc. Sizes from ½" to 1¼" in 50' lengths. Write for literature.

Other Goodall Products: Industrial gloves, Waterproof clothing, Waterproof footwear, all types hose, Conveyor belts and packing.

GOODALL RUBBER CO.

LOS ANGELES • SEATTLE • SALT LAKE CITY • SAN FRANCISCO

in secondary boycotting or jurisdictional strikes or "featherbedding" exactions.

2. The union would be unable, by law, to require an employer to bargain collectively with it.

3. The union would not be able to file complaints with the National Labor Relations Board in connection with charges of discrimination.

4. The union, if it did enter into a contract with an employer, would still be subject to an action for damages in the Federal courts for any breach of contract.

5. The union could also be sued for damages in connection with prohibited secondary boycotts, jurisdictional strikes and similar practices.

6. The union would lose any right to any form of compulsory union membership because the board would not heed any petition by it for the necessary vote on the union shop question.

NLRB Hearing Cannery Complaints

A complaint has been issued by the National Labor Relations Board charging that California Processors & Growers, Inc., and its 40 member companies, as well as five independent cannery companies, have engaged in unfair labor practices in violation of the National Labor Relations Act.

It is claimed that the various cannery companies involved, unlawfully granted assistance to the AFL Teamsters and discriminated against the CIO and its members. It is alleged that approximately 1,000 employees have been unlawfully discharged or otherwise discriminated against by the canneries. If the Board finds that these employees were wrongfully deprived of employment, employers will probably be required to reinstate employees and pay them for all wages lost as a result of the discrimination. Hearing is set for Oct. 2.

NLRB Rules Set For Pending Cases

Disposition of the hundreds of cases pending in the San Francisco offices of the National Labor Relations Board has been partially settled by the instructions issued by the National Board to the various regional offices. These instructions, said to cause even greater confusion, apply to all cases filed prior to August 22. Just what will happen to cases not cleared after August 22, is a problem that NLRB is not prepared to answer at this time. More rules are forthcoming from Washington in the near future.

These are the rules to be observed by the regional board upon instruction from the main office:

1. Complete all hearings which have started on unfair labor practice cases. Reexamine immediately cases in which unfair labor practice complaints have been issued but in which no hearings have begun. Proceed with those cases in which alleged violations are illegal under the new law but submit all others to the Washington office with recommendations.

2. Accept no charges of unfair labor practices against unions and take no action on requests by unions for injunctions until August 22.

3. Dismiss immediately all petitions seeking certification of units of supervisors.

4. Clear all cases involving units of plant guards.

5. Make a complete record on craft unit cases and cases involving professional employees.

6. Instruct hearings officers to submit to the Board an analysis of the record in representation cases but to make no recommendation.

7. Complete the conduct of cross-checks already agreed to but withhold approval from any further cross-check agreements.

NLRB Clumsy Says IWA

The executive board of the International Woodworkers of America, at a Portland Conference, declared that it will use the National Labor Relations Board only when it is to the advantage of the union, indicating in many instances the union would strike for recognition of the union rather than to utilize time-consuming and cumbersome NLRB provisions.

Time Saver FOR Busy People

BANK WITH US BY MAIL

You don't waste time running around to every store to pay your bills . . . you just mail your check. Then why don't you save additional time and trouble in handling your bank affairs by using our Bank-by-Mail Service? It's the same idea. Write today for simple instructions for banking by mail.

CROCKER FIRST NATIONAL BANK
SAN FRANCISCO • OAKLAND
California's Oldest National Bank

Member Federal Deposit Insurance Corporation

MANAGEMENT SURVEYS

- Power & Utilities
- Transportation
- Economic Verification
- Production
- Industrial Relations
- Material Control
- Forecasting & Budgeting
- Office Systems
- Statistical
- New Product Analysis
- Market Research

2000 SURVEYS in 20 years

50 Consultants continuously available

C. T. GILLIAM & ASSOCIATES
6311 North Figueroa St.
Los Angeles 42 Albany 4545

BERGER MANUFACTURING DIVISION
REPUBLIC STEEL CORPORATION

SHELVING - LOCKERS
AUTOMOTIVE BINS
SHOP EQUIPMENT
KITCHEN CABINETS
FILING CASES - DESKS

DISTRIBUTORS
CALIFORNIA — ARIZONA — NEVADA

PETLEY INCORPORATED
5480 E. Slauson Ave. Los Angeles 22, Cal. ANgelus 2-5121
178 Grand Ave. Oakland 12, Calif. HIgate 4-3150

THE WEST ON ITS WAY

ARIZONA

WATER TREATMENT PLANT—City of Phoenix has awarded contract for construction of municipal water treatment plant to Del E. Webb Constr. Co. and Arizona Sand & Rock Co. for $1,157,940. The plant will be located at the junction of the Salt and Verde rivers.

TRANSFORMERS FOR DAVIS DAM—U. S. Bureau of Reclamation has awarded contract for five 45,000 kva. transformers to be used at Davis Dam to General Electric Co. for $1,080,185.

WAA SELLS AIRPORT—The city of Tucson has purchased a surplus airport and modification center from War Assets Administration, for $100,000. Property included 1,749 acres of land which had been leased by WAA from the city. This was returned to Tucson by cancellation of the lease. Included in the sale are three hangars, a fire and crash truck station, control tower, field operations structure, three reservoirs, a warehouse, welding, salvage, heat treatment and more than 20 other facilities needed in airport operations. It is the understanding of WAA that the aviation field will be used for manufacturing, industrial activities, or any other function.

NEW HOTEL FOR WILLIAMS—A $2,500,000 luxury hotel will be built near Williams, the gateway to the south rim of the Grand Canyon of northern Arizona. The new structure, to be known as the Bill Williams Hotel, will be designed by Millard Sheets, and will be in operation all year 'round. A swimming pool, stables and golf course are included in the plans as well as a 6,000-foot ski run and natural lakes which will provide ice-skating facilities for the winter sport enthusiasts. Officers of the hotel corporation include Daniel P. O'Shea, president; Vroman J. Dorman, San Diego, vice-president; Urban R. Miller, Williams, Ariz., secretary; Clayton V. Smith, Los Angeles, hotel operator, and Vaughn Paul of Hollywood, directors.

CALIFORNIA

BARNES CO. LOCATES IN AZUSA—The W. M. Barnes Co. has moved a large assortment of heavy government equipment into its new location on West Foothill just east of the former Ogle factory, which will become their headquarters and sales office for the disposal of war surplus construction equipment. Owned by W. M. Barnes and Jack Palo, the year-old company is capitalized for $10,000,000.

HELICOPTER COMPANY STARTED—The Armstrong-Flint Helicopter Co. has begun operations in Los Angeles with two new Bell Model 47 helicopters. The company will operate a flight school and will rent helicopters.

SHELL CO. EXPANDS—Plans for another step in the expansion of synthetic ammonia production by the Shell Chemical Corporation have been announced by J. Oostermeyer, president of the company. The new expansion designed for the company plant at Shell Point near Pittsburg, California, is directed toward an increase in capacity of about 50 per cent over present production. Shell Point is already the world's largest ammonia plant.

GUAYULE PLANT SOLD—Bakersfield guayule rubber plant built by the government for $353,495 was bought by G. E. Gilmore, Jr., Bakersfield, for $43,100, according to War Assets Administration. Mr. Gilmore, veteran priority holder, plans to open a fertilizer plant on the property. Fair market value on the plant had been set by WAA at $205,000.

L. A. RUBBER PLANT CLOSED—The United States Rubber Company will relinquish operation of the government's synthetic rubber plant at Los Angeles, which is being closed down, and take over operation of the government's 45,000-ton synthetic rubber manufacturing plant at Borget, Texas.

RAILROAD CONTRACT AWARDED — General-Shea-Pacific has been awarded a $2,300,000 contract to construct 52 miles of standard gauge railroad for Kaiser Company, Inc., in Riverside County, which will connect Kaiser Steel's new Eagle Mountain iron ore mine with the Southern Pacific main line near the Salton Sea. Upon completion the line will be one of the longest privately used standard gauge railroads in the United States.

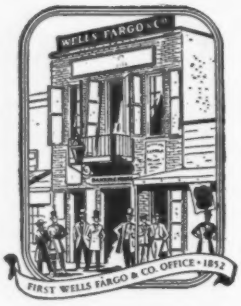
THE BENCH
Pipe Vise
FOR EASIER WORK

Like all RIDGID Vises it's equipped with handy pipe rest and bender

● Extra features that save you work make this RIDGID bench yoke vise more for your money. An integral pipe rest, a bender that won't flatten pipe, LonGrip jaws that protect polished pipe. Years of trouble-free service—special malleable frame and heat-treated tool-steel jaws for maximum wear. Eight sizes for pipe to 6 inches—look for the RIDGID red-top at your Supply House.

RIDGID
chain type vises in 5 sizes to 8."

RIDGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY · ELYRIA, OHIO



Bankers
to Western
Firms and
Individuals
since 1852

RESOURCES OVER $500,000,000

Wells Fargo
Bank & UNION TRUST CO.

SAN FRANCISCO · 20

Market at Montgomery · Market at Grant Ave.

Established 1852

Member Federal Deposit Insurance Corporation

THE WEST ON ITS WAY

INDUSTRIAL ADVISORY SERVICE FORMED—Associated Overseas Engineering Corp. has been formed in Oakland by a group of Western industrial specialists and technologists to provide a worldwide engineering advisory service. Among the functions planned by the organization are design, research, analysis, surveys, engineering, development, training, labor procurement, construction, operation and supply. N. B. Van Buren, president, is now making a trip through Latin America, Africa and the Near East to organize the firm's offices and affiliations as well as to survey pending engineering and industrial projects.

NEW INDUSTRIES IN OAKLAND—**Ace Plastic Engineers**, establishing a new plastics fabrication business. . . . **Milani Institutional Foods of Northern California**, with a new $50,000 distributing office for this area. . . . **Pioneer Motor Bearings Co.**, building a new warehouse and office employing about 50 persons. . . . **Harold L. Winter Co.**, establishing a sheet metal fabrication and jobbing plant. . . . **Zinsco Electric Co.**, constructing a new headquarters for manufacture of electric equipment.

OAKLAND FIRMS EXPANDING—**Ace Dyeing and Curtain Works**, with a $70,000 plant. . . . **Aluminum Cooking Utensil Co.**, expanding present facilities at a cost of $200,00. . . . **Duchess, Inc.**, completing a new plant, $100,000. . . . **Gilmore Steel Supply and Co.** is expanding steel products, $50,000. . . . **Moran Plumbing Supply Co.**, increasing plumbing supply facilities at $225,000. . . . **The Peerless Iron Works**, building a new $65,000 shop. . . . **Republic Supply Co.**, Emeryville, is expanding present equipment by 35,000 sq. ft.

MARINE EXCHANGE OPENS IN NEW QUARTERS—San Francisco's historic Marine Exchange—information center for the port's vast shipping interests—has opened its new quarters at 318-320 California Street.

ROOFING PLANT FOR CORONA—Minnesota Mining & Mfg. Co., St. Paul, has announced plans to build a $1,000,000 plant south of Corona to make colored roofing granules with a new ceramic process.

SOLAR ENTERS GUIDED MISSILE FIELD—Solar Aircraft Company, San Diego, is now working with other companies in the guided

CAPITALIZE ON OUR FARM AREA

*Advantages**

BY LOCATING YOUR PLANT
IN THE

MODESTO MANUFACTURING DISTRICT

In The Center of California's Central Valley

"A Planned Industrial Community"

WITH RAIL SERVICE BY
MODESTO & EMPIRE TRACTION CO.

Write for Reprint of Western Industry article and Map Brochure

MODESTO TERMINAL COMPANY

316 Tenth Street **Modesto, Calif.**

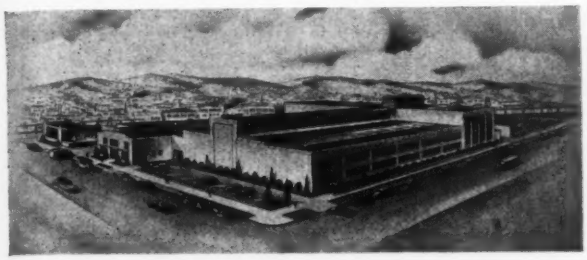
Phone 141-W

missile field and with other governmental agencies in the research and development of this newest type of projectile. . . .

NEW SHIPPING CONTAINER PLANT—Early operation is expected at the new $500,000 plant for making drums and other containers which Myers Drum Company, Oakland, is building at Road 17 in Richmond. The new plant, expected to employ 50 persons, will be managed by Harry Griffin. It will be integrated with present operations at Oakland under general manager Hubert I. Dehn. . . .

TUBBS RESUMES HARD FIBER TWINE MANUFACTURE—Tubbs Cordage Company, Western cordage makers, are resuming manufacture of hard fiber wrapping twines and Pacord, the Kraft paper covered hard fiber twine. Government restrictions on manufacture of these products expired July 15. . . .

BETHLEHEM GETS BOLTMAKER — A 16-ton mechanical giant, capable of converting coils of 9/16-in. steel rods to ½-in. by 5-in. machine bolts at the rate of 70 per minute has just been put into operation at Bethlehem Pacific's South San Francisco steel plant. First machine of its type to be installed on the West Coast, this ½-inch boltmaker upsets the metal, trims the head, points the bolt and forms the thread as one integrated operation. It turns out a product that is cleaner in appearance and at a rate 4½ times faster than by methods normally used. Before installation of this massive equipment, bolts of this size had to be hot forged in one machine, then trimmed, pointed and threaded in two other machines. Foundations are in for a ⅜-inch boltmaker soon to be installed.



• Main plant of Oliver Tire & Rubber Co., Oakland, one of the several manufacturers in Bay Area having contracts to supply automotive parts under Ford Motors' $50,000,000 purchasing program.

DEUTSCH CO. ACQUIRES NEW PLANT—Announcement of the purchase of the Automatic Screw Machine Company at 800 E. Gage Ave., Los Angeles, by the Deutsch Company of that city was made by Lester and Alex Deutsch, owners of the Deutsch Company.

NEW FISH PACKER—Laguna Packing Corporation of Wilmington has been formed out of the properties of the former Cal-Pacific Fisheries and is headed by F. W. Boltz of Los Angeles.

APPLICATION FOR PRUNE CANNERY—W. F. Doud of Monterey has applied to the county planning commission to erect a prune cannery in East Monterey area.

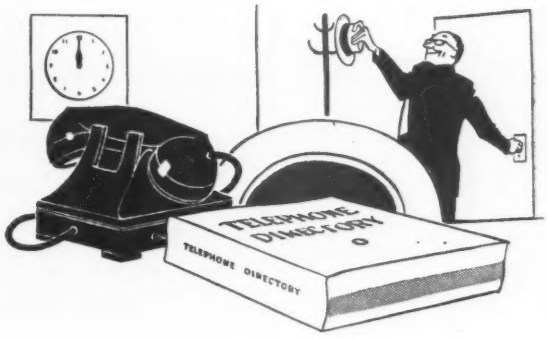
ENTERPRISE ACQUIRES HENDY — The Enterprise Engine and Foundry Co. of San Francisco has acquired the complete line of Hendy marine and stationary Diesel engines formerly manufactured by the Joshua Hendy Iron Works at Sunnyvale. This firm is a subsidiary of Transamerica Corp.

NEW HOTEL TO REPLACE DEL MONTE—The Del Monte Properties have announced plans for a multi-million dollar hotel and village to be erected on land not included in the sale of the Del Monte Hotel to the government for a naval post graduate school. John B. Morse, president of Del Monte, said the company will spend $2,000,000 at once on the new project, and he estimated that additional construction near the hotel site by private interests may result in a $20,000,000 development within a few years. Announcement of the plans was made after the House and Senate passed bills to authorize a $2,500,000 Navy post graduate school at the luxury resort.

WAA SELLS STOCKTON PLANT—Sale of the wartime National Cylinder Gas Company plant at Stockton to Hickinbotham Brothers, Ltd., of Stockton for $57,500 has been announced by War Assets Administration. During the war the plant manufactured welding rods. Hickinbotham Brothers will continue this work, and also manufacture welding machines. Land and buildings cost the government $59,695, and equipment $101,609, a total of $161,304.

PG&E PROJECTS UNDER WAY—Construction work is under way on the first section of a new $6,500,000 power transmission line on the west side of the San Joaquin Valley, the second major feature of a $37,000,000 Pacific Gas and Electric Company project which will

Your lunch hour you won't be denied



if you use the speedy Classified

You'll spot 'em quicker in the Classified...it's the speedy answer to most every need. The Classified is an easy-to-use listing of supplies, products and services. It really covers from A to Z. The Classified at your elbow means time and trouble saved.

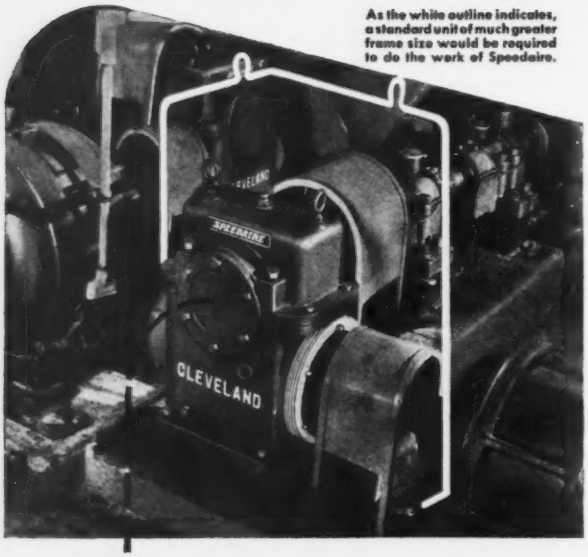
You'll find it faster in the

YELLOW PAGES

of your Telephone Directory

The Pacific Telephone and Telegraph Company

BELL SYSTEM



As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire.

SPEEDAIRE twins save space, reduce weight, cut cost $385

THESE two Speedaires are installed in the northern New York mill of a well-known paper company. The reducer in the foreground drives a paddle wheel circulating hot-pond water; the other drives a chain conveyor bringing rough wood into the hot pond.

In operation over a year, the Speedaires are completely satisfactory. As is apparent from this photograph, they saved valuable space, permitting motors and drives to be grouped more closely. Load on the floor was reduced 1300 pounds (Speedaire's weight is less than half that of a conventional worm-gear reducer) and cost saving was $192.50 per unit.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Company, 3269 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.

CLEVELAND
Worm Gear
Speed Reducers

THE WEST ON ITS WAY

bring a vastly increased power supply to the lower San Joaquin. Meanwhile construction is progressing rapidly on the new $25,640,000 Kern steam plant, a steam-operated powerhouse five miles west of Bakersfield, which will add 235,000 horsepower of electricity to the interconnected PG&E network.

NEW BAY AREA PROJECTS—**Liberty Machine & Pole Line Co.,** 244 Napoleon St., San Francisco, has leased building at this address to more than double capacity of plant. Total expansion to cost about $70,000 and ultimately provide 10 new jobs. . . . **Ross Industries, Inc.,** 3776 - 24th St., San Francisco. New pilot plant to manufacture banana crunch. Franchises will be granted to dairies in other cities. Plant will cost $65,000 and employ 17. . . . **Matmor Canning Co., Inc.,** Woodland, Yolo County. Installing new equipment in $200,000 plant to increase capacity 25 per cent. . . . **Coast Manufacturing Co.,** Livermore, will install $200,000 worth of equipment to weave and process fibreglass cloth. . . . **General Chemical Co.,** Richmond. Purchased government owned acid plant at foot of Castro and S. 26th Sts. for $325,000. Plant has capacity of 65,000 tons of acid annually.

ANOTHER PG&E EXPANSION NEARS COMPLETION—Moroga substation, nearing completion in a hidden pocket valley between Orinda and Moraga, is the key unit of a $6,700,000 Pacific Gas and Electric Company project which will add 250,000 horsepower of electricity to the power pool serving Contra Costa and Alameda counties, including the metropolitan East Bay area. The new substation, being constructed at a cost of $3,700,000 is more than half completed.

NEW INDUSTRIES IN OAKLAND — **Bay Counties Engineering Co., Inc.,** a new $50,000 engineering and designing corporation. . . . **William A. Owsley Co.,** a new $50,000 building material and supply plant. . . . **Pepsi Cola Co.,** new $200,000 syrup manufacturing plant. . . . **Rainier Distributors, Inc.,** new Alameda County beer distribution plant, with a capital investment of $200,000, employing 30 people.

OAKLAND EXPANSIONS—**Associated Cooperatives, Inc.,** moving to new quarters at an investment of $125,000, with remodeling and additional office improvements amounting to $6,500. . . . **Peterson Tractor & Equipment Co.,** doubling present size of plant in new building at $500,000 investment in property and equipment.

TRAILER PLANT FOR EL MONTE—Clark & Utemark, manufacturers of Tilt Trailer, have started production in El Monte. They will manufacture a trailer of one-ton capacity with swinging rear gate feature.

INDUSTRIAL EXPANSION IN NORTHERN CALIF. — **Schlage Lock Company,** San Francisco, awarded contract for $90,000 reinforced concrete factory addition, a general expansion of facilities for manufacturing builders' hardware. . . . **Germ X Laboratories, Inc.,** San Francisco, a new $200,000 corporation which manufactures and distributes a newly developed germicidal-antiseptic-deodorant combined in one product. The new venture provides eight factory jobs. . . . **General Tool & Die Stamping Works,** San Francisco, plans erection of $50,000 plant building for removal and expansion of facilities. Expansion will create eight new jobs. . . . **Beaumont Furnace & Sheet Metal Works,** San Francisco, purchased former war plant building for removal and expansion of metal manufacturing plant. Expansion will cost $85,000 and provide approximately 20 new jobs. . . . **Kaufman Meat Company,** San Jose, awarded contract for first two units in a $1,000,000 expansion program to modernize and increase capacity of meat rendering and packing plant. . . . **EBO Products Company, Berkeley,** a new corporation leased plant and installed equipment for manufacturing doors. Company employs 21 workers. . . . **Tea Garden Products Company,** Oakland, purchased a 10-acre site for new $1,000,000 food products plant. . . . **Kelsey-Hayes Wheel Company,** of Detroit, purchased the Lathan Company, Inc., South San Francisco. New owners plan expansion of the Lathan Company's power brake equipment business. Kelsey-Hayes manufactures wheels, brake drums and chassis parts for the automotive industry. . . . **Contra Costa Vegetable Oil Corporation,** Richmond, a new corporation to manufacture and process cocoanut, peanut, flaxseed, and vegetable oils. Project will create 19 new jobs.

LOS ANGELES COUNTY EXPANSIONS—**Parker Mfg. Co.,** 2200 Colorado Ave., Santa Monica, will double manufacturing space on its six-acre site, bringing total to 15,000 sq. ft. A 16,000 sq. ft. warehouse will also be constructed, with spur track facilities added. Company makes power squaring shears, and steel kitchen cabinets. . . . **M. O. Johnston Oil Field Service Corp.,** 3117 San Fernando Rd., will shortly move to 2035 Andrita St., where 22,000 sq. ft. of floor area will be available for expanded production of oil well drilling tools. . . . **Harold E. Peterson,** 1350 Elwood St., has added 15,000 sq. ft. and plans another 7,000 sq. ft. for increased manufacture of commercial kitchen

equipment, heating, ventilating, and air conditioning equipment, and general sheet metal and structural iron work. . . . **Pomona Paper Products, Inc.,** 1450 Holt Ave., Pomona, will construct a 21,000 sq. ft. building just east of present location. Company makes waxed paper rolls, paper napkins, and will probably add other items. . . . **Champion Products, Inc.,** 307 E. 4th St., has moved to this address where 20,000 sq. ft. of floor area are available for manufacture of metal gift items such as book ends, trophies, wall plaques, etc. . . . **California Preserving Co.,** 3711 Medford St., will construct a plant on Indiana St., near Fowler, to contain 20,000 sq. ft. Occupancy is expected about the first of the year. Company makes jam, jelly, marmalade, apple butter, and mince meat. . . . **Satisyne Co.,** 5772 S. Joanne Pl., Culver City, has moved to this location where 18,000 sq. ft. of floor space are utilized for manufacture of reflector signs of various types for highway, street, curb, display, etc. . . . **General Petroleum Corp.,** 108 W. 2nd St., will construct an industrial relations building, including a hospital, at its Torrance refinery. Cost is estimated in the neighborhood of $100,000. . . . **Western Precipitation Corp.,** 1016 W. 9th St., has leased a building at 233 W. Orange Grove Ave., Burbank, to which location it will move some time during August. At the new plant, 13,550 sq. ft. of floor space will be utilized, as well as 22,000 sq. ft. of yard area, for design and manufacture of dust collection equipment. . . . **Henderson Trade Bindery & Cover Co.,** 2826 S. Grand Ave., has moved to its new building at this address where 13,000 sq. ft. of floor area are available. . . . **Hodge Sheet Metal Products,** 201 E. 58th St., is occupying its new building where 12,500 sq. ft. are utilized for fabrication of various sheet metal items.

COLORADO

NEW OVENS FOR MINNEQUA—Half of a new battery of 74 coke ovens was put into operation at the Minnequa plant of the Colorado Fuel & Iron Corporation of Pueblo. The 37 new ovens will increase production at the steel work coke plant by 450 tons, and with the starting of production in the other 37 ovens soon, the output at the steel mill will be boosted to about 2,900 tons daily. Present output is 2,000 tons. The ovens were constructed during World War II to insure the steel works sufficient coke to meet war demands, but were not needed.

RUSTIC FURNITURE CO. OPENS—The Pinecraft Furniture Manufacturing Company was recently established in Denver by Carl Harder, former Nebraska insurance agent, and P. H. Laymon of the Wyoming oil country. Pinecraft is selling hotels, resorts, and retail stores.

GETS FORD CONTRACT—The Royal Gorge Manufacturing Co. has been awarded a Ford Motor Co. contract to manufacture 850,000 synthetic parts at 50 cents each, giving the company a required payroll of around 125.

FURNACE FACTORY TO OPEN—A new Denver industry which will employ 1,200 persons will begin operation at the Rocky Mountain arsenal shortly. The Lucas Mercury Arc Furnace Corporation plans to manufacture a revolutionary new type of furnace in which mercury vapor will be the heating agent. Dr. Ralph Lucas of Ackley, Ia., in Denver to arrange for the new operation, said his firm would occupy seven buildings at the arsenal with a total floor area of 161,000 sq. ft. Output ultimately will reach 3,000 units a month. Albert Nuzum will be general manager in charge of sales and distribution.

IDAHO

NEW VEIN CUT IN SILVER BELT—A new vein of rich silver ore has been cut in Silver Summit ground in the famous silver belt of the Coeur d'Alenes near Wallace. The discovery was made in the crosscut from the 3,000 level of the Silver Summit in a vein that was barren of values in upper workings of the property. It is characterized as one of the outstanding discoveries in years in the silver belt and is attracting widespread attention among this district's mining fraternity.

GYPSUM FIELD OPENED—A major gypsum enterprise is in the making on the Idaho side of Snake River, about opposite the old station of Gypsum on the Robinette (ex-Homestead) branch of the Union Pacific railroad. An edge-standing deposit 100 feet wide is being opened by a syndicate that now plans to incorporate.

NEW EQUIPMENT TO BOOST SUGAR OUTPUT—Installation of a continuous diffusor under way in the Amalgamated Sugar Company refinery at Nampa will increase its capacity to 2,500 tons of beets each 24 hours. Present capacity is 2,100 tons. The new equipment was in-

Finish Larger Areas

Workmen handle snagging and finishing jobs faster, with less fatigue when equipped with this powerful Mall Flexible Shaft Grinder. Its flexible shafting and swiveling motor follow the operators movements, permitting him to work in any position and at any angle.

The heavy duty motor is mounted on an easy-rolling pedestal base to take the motor weight and vibration from the operator's hands and to permit a more generous use of copper and iron in the motor which is dynamically balanced to assure true concentric motion in the tool.

A size and model for every shop, plant and job. Direct Drive—¾ to 3 H.P. (3450 r.p.m.); Geared Head—1½ to 3 H.P. (4500 r.p.m.); Countershaft models—¾ H.P. (1650 to 7400 r.p.m.). Available with low caster base, pedestal caster base, or overhead mounting for maximum portability.

Ask Distributors below or write Flexible Shaft Division

MALL TOOL COMPANY 7810 South Chicago Ave. Chicago 19, Illinois

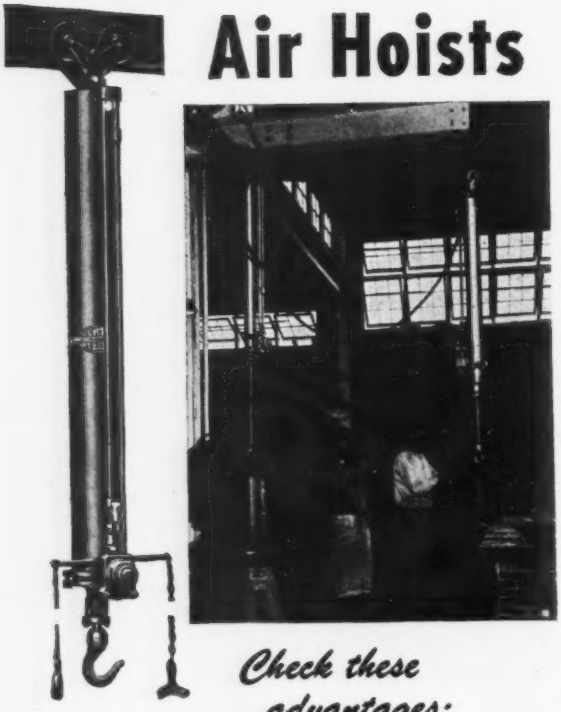
Pacific Coast Factory Branches: CALIF.: 5316 S. Santa Fe, Los Angeles; 925 Howard St., San Francisco. Wash.: 405 E. Pike St., Seattle

MALL AUTHORIZED DISTRIBUTORS: ARIZONA: Electric Tool & Supply Co., Phoenix. CALIFORNIA: Marshall Tool and Supply Co., Los Angeles. Electric Tool & Supply Co., Los Angeles. M. N. Thackaberry, Los Angeles. Delta Equipment Agency, Oakland. Hudson Tucker, Inc., San Diego. MONTANA: Hall-Perry Machy. Co., Butte. OREGON: Cramer Machinery Co., Portland. Washington: A. H. Cox Co., Seattle. Construction Equipment Co., Spokane.

Mall REG. U.S. PAT. OFF. PORTABLE POWER TOOLS

SAVE TIME—
REDUCE LABOR COSTS
for Lifting, Pushing or Pulling with

CURTIS
Air Hoists



Check these advantages:

- ✓ Low first cost, lowest operating expense
- ✓ Smooth, fast, accurate control
- ✓ Finger-tip control
- ✓ Light weight, immune to overloading
- ✓ Capacities up to 10 tons

For full information on Curtis Air Hoists, Air Cylinders and Air Compressors, write for Form C-7.

Sales Representatives:

C. HOMER REDD 421-423 E. Washington Blvd., Los Angeles 15, Calif. 2850 Broadway, Oakland 11, Calif.

O. J. THOMAS 1018 S.E. 8th Avenue, Portland 14, Oregon

H543A

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1954 Kienlen Avenue, St. Louis 20, Missouri

Please send me Form C-7 on Curtis Air Hoists, Air Cylinders and Curtis Air Compressors.

Name.....
Firm.....
Street.....
City.....*Zone*.....*State*.....

93 Years of Successful Manufacturing

THE WEST ON ITS WAY

stalled last year in the Nyssa plant where capacity was increased to 2,750 tons a day.

CONSTRUCTION APPROVED—Authorization for the construction of a $71,780 creamery by the Jerome Cooperative at Burley has been authorized by the office of housing expediter non-residential construction committee.

MONTANA

CARTER PLANS EXPANSION—The Carter Oil Co., subsidiary of Standard of New Jersey, has started construction of an oil refinery at Billings at a cost of $25,000,000. The company's northwest division exploration and production departments and part of the executive staff have moved from Billings to Denver. R. B. Curran, vice-president and division manager, said that Billings will continue to be Northwest division headquarters for manufacturing and marketing operations. Thirty of the company's employees now stationed in Billings will be affected by the move. Harry C. Chapman, assistant division manager; T. R. Corbett, head of refining activities in the division, and G. W. Menke, in charge of division marketing operations, will retain offices in Billings.

NEW FIRM TO ASSIST IN TIMBER CLEARING—A new corporation, the Mountain-Valley Lumber Co. of Columbia Falls, has been formed to subcontract timber ties and poles from Hungry Horse damsite and reservoir clearing being undertaken by the R & S Construction Co. In the new corporation are E. C. Gallagher, Henry Feldman, Ted Bies and E. L. Trudeau, all St. Paul business men or contractors. The men plan other activities in this area.

NEVADA

GABBS BID—Pacific Rock & Gravel Co., Los Angeles, was high bidder for an entire town, Gabbs, Nev., an ore processing plant there, and 4,990 acres of land containing magnesite, the WAA has announced. The company offered $259,001 for the whole property. WAA officials said the property includes what is estimated to be the largest ore deposit of magnesite in North America. The townsite includes a hotel and houses which will accommodate 250 persons, now 65 per cent occupied. The property cost of government $8.5 million and fair market value was established at $2.8 million.

NEW MEXICO

CO-OPS PLAN HUGE 1948 PROGRAM—A $3,360,000 New Mexico Rural Electrification Assn. program for the ensuing year is planned by the 10 REA co-operatives, who will send delegates to Washington to press for needed funds. Oliver Kimbrough, association president, said estimates for the next year indicate that the nine existing co-operatives in the state will need $1,660,000 and that the five newly organized co-operatives now awaiting first allotments will need $1,700,000. The five new ones are at San Mateo, Lovington, the North Central Co-operative near Santa Fe, Columbus and Clayton. The estimate of funds needed is based on applications from farmers and ranchers in almost every part of New Mexico. The number of these is large because in the early days of the REA program, New Mexico was considered too thinly populated to justify the extension. As of January 1, 1947, only 35.8 per cent of New Mexico farms and ranches had electric service.

ROCKET BUSINESS PICKING UP—Guided missile research, tabbed a key phase of the nation's military preparedness program, is booming in Alamogordo. The program has been in progress at nearby White Sands proving ground nearly a year, and now the Army Air Forces are consolidating a separate set of rocket experiments at the Alamogordo Army air field. Boeing Aircraft facilities and equipment have been transferred to Alamogordo and coincide with the first launching of one of the company's supersonic GAPA missiles.

OREGON

NEW INDUSTRIES FOR PORTLAND AREA—B. F. & Y. Lath Mill, 5117 N. Trenton St., new company manufacturing lath and shingle bundle bands. . . . Croftbrush Company, 3345 S. E. Hawthorne Ave., new company fabricating bathtub mats from lucite. . . . H. M. K.

Builders Co., Linnton, new company producing panels and trusses for houses and industrial buildings. . . . **Ken's Motor Machine Shop,** 5901 S. W. Macadam Road, new concern equipped to do custom machining. . . . **Metal Arts Foundry & Machine Co.,** 5722 S. E. 128th Ave., new company manufacturing aluminum industrial toys. . . . **Slayter Woodcraft Co.,** 6809 S. E. Foster Rd., new company producing desks and furniture. . . . **Superior Products Co.,** 4725 S. E. Division St., new company producing concrete garden items. . . . **Art Concrete Works,** foot of S. W. Grover St., new concern manufacturing yard incinerators, benches, and standardized products for public utilities. . . . **Pixie Dixon Flavor Co.,** 1520 S. E. 11th Ave., new branch plant of Los Angeles concern producing syrups and general flavoring. . . . **Plastic Sheeting Company,** 1205 S. E. Grand Ave., new company manufacturing aprons and curtains from plastic sheeting. . . .**S M S Wood Products, Inc.,** Beaverton, new company producing fir and hardwood plywood for furniture industry. . . . **Schoessler & Krake Manufacturing Co.,** 5625 N. Lombard St., new woodworking company specializing in store fixtures and general cabinet work. . . . **Mosaic Tile Co.,** 338 S. W. 9th Ave., new company manufacturing cement tile. . . . **Western Block Co.,** 6330 S. E. 101st Ave., new company producing pumice building blocks. . . . **Lewis Packing Company,** Gresham, new company canning fruit. . . . **Columbia Woodworking Company,** 6432 N. E. Columbia Blvd., new company fabricating cable reels, pallets, roof trusses, etc. . . . **Johnsrud Log House Company, Inc.,** Sandy, new company producing log houses.

METALLURGICAL PLANT EXPANDS—Work has started on two additional buildings at the Electro Metallurgical Company plant, Portland. A 66x120-ft. drum shop and a 24x120'ft. carbide container storage building will be constructed. Estimated cost will be $70,000.

ROOFING PLANT BEGUN—Construction has started on the new Pioneer Flintkote Company plant on N. W. Front St., Portland. This project will cost about $650,000 and the finished plant will employ 200 workers in the production of asphalt roofing.

PORTLAND AREA EXPANSIONS — **Union Pacific Railroad Co.,** two-story 200x200-ft. reinforced concrete warehouse for Rudie Wilhelm Warehouse Co. Estimated cost, $420,000. . . . **Oregon Livestock Corporation,** Oregon City, reinforced concrete meat packing plant; estimated cost $110,000. . . . **McCracken Bros. Motor Freight Co.,** two-story concrete freight terminal; estimated cost $62,500.

CAN COMPANY TO BUILD AT PORTLAND—Continental Can Co. has purchased a 57-acre tract at Portland, near Portland Municipal Terminal No. 4, for erection of a can manufacturing plant. No figure was disclosed but it is understood Continental's total expenditure, including the plant, will approximate $1 million. Employment will be given to about 200 workers. Continental now has plants at Seattle and Walla Walla, Wash.

NEW UNIT TRIPLES CEMENT OUTPUT—Oregon Portland Cement Company has announced completion of its new cement manufacturing unit at its plant at Oswego, Oregon. Ground was broken about 11 months ago and the construction of this new unit involved the superimposing of an entirely new cement plant upon the former facilities. The new plant has cost about $1,250,000.

CREAMERY TO BUILD—The Tillamook County Creamery Association, Tillamook, has filed an application with the Portland district construction office of the housing expediter for permission to construct the first unit of a $900,000 milk processing factory. The job will consist of 12 garage bays, 12 ft. each; a cold storage plant, 104 by 156; a warehouse, 50 by 90 ft.; a boiler room, 30 by 40 ft.

PLANT ESTABLISHED — A prefabricated house manufacturing plant will be established in Coquille. The business was incorporated June 4. Incorporators are Iris Elrod, Geo. Johnson and Lynn F. Perrott. Houses in the low-price range will be built, they said. Some equipment and machinery for the plant has already been delivered.

NEW FREEZER COMPANY FORMED—Formation of a new $250,000 corporation, Pioneer Refrigeration, Inc., to engage in manufacturing of refrigerators in Corvallis, has been announced. The new corporation will take over the home-freezer manufacturing business of the Chapman Manufacturing Company, and for the time being will operate with the same personnel in the Chapman plant here. Ultimately it is planned to erect a new plant for manufacturing of the freezing units. Incorporators are C. E. Mariner, Mabel E. Mariner, Melvin L. Mariner and J. H. Gallagher, all of Corvallis.

CARBORUNDUM COMPANY PLANS PLANT—Carborundum Co. of Delaware has been active in the Portland-Vancouver area planning a large new plant for manufacture of abrasives. When and as built it is expected to be on a site on the Columbia River near Aluminum Co. of America at Vancouver, and to operate in conjunction with already established sources of material supply and on Bonneville power.

"Cut down handwork in furniture finishing"

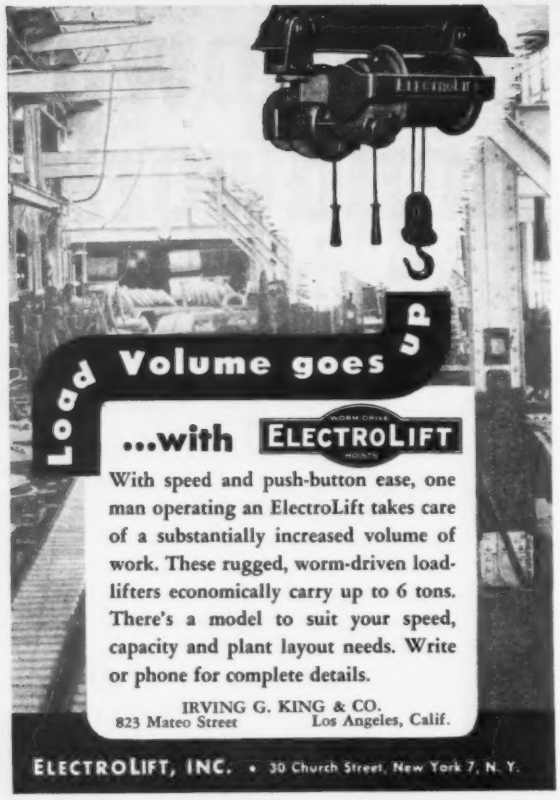
GENERAL PAINT
Problem #C-138

OREGON FURNITURE MANUFACTURER wants lacquering system that cuts hand labor to minimum — speeds up operation — reduces overall cost.
BUT: must maintain quality furniture's "hand-rubbed" appearance.

How General Paint experts help manufacturers reduce product finishing costs

Again General Paint's nearby laboratory delivered a superior finish at surprisingly low cost per gallon. *In addition,* our experts devised a new labor-saving lacquering system.

This eliminated heavy rubbing and between-coat preparation . . . substantially cut total production time . . . yet resulted in furniture with high-quality "hand-rubbed" appearance. This kind of "know-how" can help save time and money in *your* plant. Better call in a General Paint expert soon.


Load Volume goes UP
...with ELECTROLIFT
With speed and push-button ease, one man operating an ElectroLift takes care of a substantially increased volume of work. These rugged, worm-driven load-lifters economically carry up to 6 tons. There's a model to suit your speed, capacity and plant layout needs. Write or phone for complete details.
IRVING G. KING & CO.
823 Mateo Street Los Angeles, Calif.
ELECTROLIFT, INC. • 30 Church Street, New York 7, N. Y.

In the West...it's
KINGWELL
BRONZE
BEARINGS
Bearings and machined bars are manufactured and stocked for prompt delivery by distributors in all principal western cities.
Send for size list of bearings stocked.
KINGWELL BROS., LTD.
Manufacturers — Since 1855
457 Minna Street, SUtter 1-0514
San Francisco, California
Kingwell Bronze Bearings & Bar Stock
Chrysler Oilite Bearings & Bar Stock

THE WEST ON ITS WAY

STAUFFER CONSTRUCTION WELL UNDER WAY—Contractors Reimers & Jolivette have construction 65 per cent finished on a new warehouse building for the Stauffer Chemical Co., on Suttle Road, North Portland. The new building will be a one-story 66x98-ft. structure of reinforced concrete.

AUSTA LUMBER CO. SOLD—Purchase of the Austa Lumber Company mill and timber holdings near Eugene, by the Long-Bell Lumber Company has been announced. The amount of the transaction was not disclosed. The Austa mill is 36 miles west of Eugene, near Linslaw, and is located on the Coos Bay branch of the Southern Pacific railway. It has a capacity of 60,000 board feet for each eight-hour shift and employs 60 people in the mill and adjacent logging operations.

RAHN-McWHORTER SOLD—The Zellerbach Paper Company, a division of the Crown-Zellerbach Corporation, has purchased the Rahn-McWhorter Paper Company in Salem.

MILL BOUGHT AT ROSEBURG—Purchase of the Roseburg mill that has operated under lease from the federal government since 1943 has been announced by the Youngs Bay Lumber Company. Constructed as a war plant, the first mill in the Pacific Northwest to cut crating material from Douglas fir, the plant furnished large quantities of two-inch plankings used in preparing overseas shipments of ordnance equipment during the latter part of the war. The mill, which has a daily capacity of 200,000 board feet, was purchased at a price of $1,050,000.

MILL STARTED AT JUNCTION CITY—Construction of an efficiency designed planing mill and manufacturing plant is under way with an anticipated expenditure of $250,000 involved, according to Nils Hult of the Hult Lumber Company.

UTAH

PHOSPHATE DEVELOPMENT PLANNED—In Utah, probable development of phosphate deposits by a major national company has just been reported by Dr. William W. Rubey, geologist for the U. S. Geological Survey. Dr. Rubey describes the intermountain beds as comparing in size with Florida and the African beds, the world's largest. Intermountain output thus far has been small and has gone mostly to Japan. The project for a real development is linked with expectancy that Western farms soon must increase their use of phosphates in soil restoration by large amounts.

STEEL FABRICATING UNIT—Steel fabrication on a large scale soon will be a reality for the first time in Utah's history when the Structural Steel and Forge Company, 545 West Seventh South St., Salt Lake City, completed its new fabricating plant. When completed the fabricating unit will be able to turn out steel for roads, bridges, buildings and homes and for many other construction projects. Joseph Rosenblatt is president.

SOAP COMPANY EXPANDS — Intermountain Laboratories, Ltd., Salt Lake City, creators and manufacturers of "Stardust," a new soap product, are planning to build a three-story plant and office building at a cost of $100,000. It will be located in Salt Lake at 64th South and the Denver & Rio Grande Western tracks. Organization plans to expand to supply wholesale and retail soap users. All raw materials used in the product are either manufactured or purchased locally. . . .

FOUNTAINS SAVE TIME!

• Drinking Fountains and Water Coolers, strategically placed throughout your plant and office, save your employees time, promote goodwill and contribute to the general health of workers. HAWS Drinking Fountains and Electric Water Coolers are smartly styled and designed for perfect sanitation and convenience. . . . They're economical, too!

• Popular Industrial Model No. 8

WRITE TODAY FOR COMPLETE INFORMATION

HAWS

HAWS DRINKING FAUCET CO.
1808 Harmon Street Since 1909 Berkeley 3, California
Agents and Sales Representatives Located in All Principal Cities

KENNECOTT PLANS EXPANSION—Kennecott Copper Corp. is contemplating investment of several million dollars in new equipment and facilities at the Bingham open pit mine and in nearby mill operations.

COAL LAND OPEN TO BID—The Interior Department will lease through competitive bidding 2,520 acres of central Utah coal lands sought by both Henry Kaiser and the Geneva Steel Corporation. Kaiser wants the coking coal for use at his Fontana, Calif., plant; Geneva for use in its steel mills. The land involved is part of the rich Sunnyside field, 24 miles southeast of Price, along the present Geneva mine.

WASHINGTON

SPOKANE LUMBER PLANT STUDIED—Spokane is being surveyed as a location for a sheet lumber manufacturing operation, utilizing wood wastes, by the Goss Engineering Co., 4503 W. Marginal Way. The initial operation would mean an investment of more than $400,000 in site and facilities, which would include $100,000 in equipment.

BARK PRODUCTS IN PRODUCTION—Commercial quantity production of five products manufactured from bark has started in a recently completed processing plant at Longview by the Weyerhaeuser Timber Co. This operation, tapping a new source of raw materials, is a step toward complete utilization of forest resources. Bark, long considered almost worthless in logging, represents approximately 12 per cent of a saw log. The bark products are being marketed nationally under the general trade name Silvacon by Weyerhaeuser.

SAFETY INVENTION MADE IN SPOKANE—First units of a new aluminum fire safety ladder, the idea for which was conceived by the inventor, David Baker, after the Winecoff Hotel fire in Atlanta last December 7, will be made in Spokane from local aluminum. First production will be in the plant of Brown Industries, where plans and designs were drawn. Castings will be made by the Western Light Metals Company. David Brown, president of Baker Fire Safety Ladder, Inc., incorporated in Seattle last January, said the concern will establish offices and manufacturing headquarters in Spokane, because of superior manufacturing facilities available here and assured raw materials supplies.

GENERATOR FOR GRAND COULEE—Capable of providing enough electricity to drive a fleet of 20 oil tankers at full speed, a 108,000 kilowatt generator has been completed by Westinghouse Electric Corporation for installation at Grand Coulee Dam, Washington. The new generator is as large as a six-room house.

NAVY TO RETAIN SMITH COVE—The Navy supply installation at Smith Cove will become one of four major Navy supply centers in the United States if plans under consideration by the Navy Department are approved, it was learned today. Two major supply centers will be maintained on each coast for the Navy's postwar fleets, with depots at Oakland, Calif.; Norfolk, Va., and Bayonne, N. J. The installation here will be known as the Naval Supply Center, Puget Sound.

NEW ROOFING MATERIAL—The Aluminum Co. of America has begun production of a new aluminum roofing material at its Vancouver plant.

FREEZING STRAWBERRIES — Three processing plants in Walla Walla are freezing strawberries. They are the Blue Mountain Prune Growers Co-operative and F. G. Lamb & Co., of Milton-Freewater and the Libby, McNeil & Libby plant. The Blue Mountain is freezing them in 50-pound tins and the Lamb concern in 30-pound tins, both for commercial use, while the Libby plant is putting them in 12-ounce cartons for retail sale.

NEW INDUSTRY FOR VANCOUVER—The Bemis Bag Company has announced the specifications of its new Vancouver plant. The factory will be one story 160x200 ft. with a four-story 100x106-ft. warehouse and a two-story 100x160-ft. office building. Total employment will be 200 when plant is in operation.

OLYMPIA PHONE ADDITION — Pacific Telephone & Telegraph Company officials have announced that a $150,000 addition to the Olympia headquarters will be started in July to house $52,000 worth of dial and long-distance equipment.

LAUCKS LABORATORIES START NEW SERVICE—With newly-installed equipment, Laucks Laboratories, Inc., of Seattle has started a testing service for manufacturers of building and construction materials who require federal and city approval for their products; also to aid them in their research activities. Tests of materials for thermal conductivity, moisture absorption, compressive strength and sound absorption are among those to be provided under the new service.

When Things Aren't Going Right

just call the

KELITE SERVICE ENGINEER

Service, and superior products, built a world-wide reputation for Kelite. A phone call or a letter will bring a capable Kelite Service Engineer to help you with any cleaning operation–large or small. No cost. No obligation. Thousands of businesses use this simple way to save time, trouble, money. Phone or write today. You will be pleased! See your phone book or write Kelite Products, Inc., Box 2917, Terminal Annex, Los Angeles 54, Calif.

KELITE Phos-Chek Control

KELITE PRODUCTS. INC.

Manufacturing Plants In LOS ANGELES - CHICAGO - DALLAS - AUSTRALIA

SEALING UNLIMITED.....

"SEALOL"

A Quality Seal for Quality Products

The engineering design and precision manufacture of every "Sealol" mechanical seal means unsurpassed sealing for your product. "Sealol" seals any rotating shaft at high or low speeds, against a wide range of pressures - its balanced pressure feature controls seal face pressure and minimizes frictional heating and power loss. The only relative movement in the seal is at lapped faces — "Sealol" is sure in action, long-lived, and dependable.

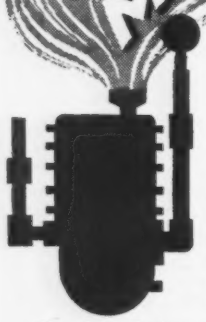
Write for information.

SEALOL CORPORATION

45 WILLARD AVENUE • PROVIDENCE 5, R. I.

Baltimore Chicago Cleveland Detroit Los Angeles New York St Louis San Francisco

GET RID OF....
AIR OR MOISTURE



HETZEL VACUUM PUMPS
• improve your product
• increase output
• reduce your costs

To remove air or dampness in any material or from any container is the chief purpose of Hetzel Vacuum Pumps but the uses are so many no one ad can possibly cover them all. In every industry there are many processes which will do better in a vacuum - and there is no better vacuum pump on the market than Hetzel.

Investigate the many uses for a Hetzel Vacuum Pump in your business -- send for detailed information applying to your problems of de-aeration and de-moisturizing. HETZEL BROS., • • • • Engineers and Mfrs. of Hi-Vacuum Pump Units, • • • • 1972 So. Los Angeles St., Los Angeles 11, Calif.

HETZEL makes America's most efficient VACUUM PUMP UNITS

BEALL SPRING WASHERS

Keep bolted assemblies permanently TIGHT

BEALL helical SPRING WASHERS have "live action" and exert tightening pressure over a long range.

They compensate for ALL causes of looseness including vibration, bolt stretch, rust and breakdown of finish under the nut and bolt head.

IN STOCK in all Standard Sizes; made of Carbon Steel, Stainless Steel, Everdur, Duronze and other metals.

BEALL TOOL DIV. (Hubbard & Co.) EAST ALTON, ILL.

THE WEST ON ITS WAY

NEW PLYWOOD FIRM—A new firm, known as Engineered Plywood Products Co., has established offices and factory at Tacoma, to supply industrial panel users with plywood and veneer cut to size and pattern. David S. Betcone, long associated with the development of markets for Douglas fir plywood, is president.

PACIFIC CAR & FOUNDRY ON NEW LEASE—The Pacific Car & Foundry Corp., 220 W. Hudson St., Seattle, was high bidder for leasing the $2,710,000 government-owned electric steel foundry near Renton and which the firm has been operating during and since the war. The bid was opened by the War Assets Administration and terms of the lease stipulate a $1,000 per month minimum rental over a two-year period on a production basis.

OHE APPROVES—The **West Coast Fast Freight Co.**, 1540 Fourth Ave. S., plans to build a $136,000 freight terminal. . . .A $75,000 warehouse is approved for the **Chicago, Milwaukee, St. Paul & Pacific Railroad.** It will be built for leasing to the **Johnson Wax Co.** for storage facilities.

FIRM LEASES FROZEN FOOD PLANT—The Mount Vernon plant of Polar Frosted Foods, Inc., has now been taken over by R. D. Bodle Co., Seattle, and will continue operation as in the past.

PLANT PRODUCES SPECIALTY ITEMS—A new plant to produce grain doors and other specialty items has been started at the Port of Longview. The plant is owned by C. R. Holden of Aberdeen. At present it has a capacity of about 500,000 grain doors a year and employs 10 men. . . .

WYOMING

ELEVEN-MILE GAS TANK PLANNED — A gas storage tank 11 miles long, authorized by federal power commission, will supplement the natural gas which the Colorado-Wyoming Gas Company supplies to communities between Denver and Cheyenne. The 11 miles of 16-inch pipe to be laid at Cheyenne wil extend in the direction of Denver and eventually will become a part of the new line which the company will lay from Denver to Cheyenne. The 11-mile stretch will have a storage capacity of about 1,000,000 cu. ft. of gas, and will cost approximately $1,500,000.

TO DEVELOP PLACER MINING — Nevada-Wyoming Mines Co. and the Great Western Mining & Development Co. have established offices in Casper to develop placer mining along the North Platte River, 25 miles southwest of Casper. The companies expect to spend approximately $4,000,000 in Wyoming in the next four years.

CONSTRUCT BENTONITE MILL—A bentonite mill which was destroyed by fire recently at Belle Fourche, S.D., will be constructed in Crook county, Wyo., closer to the source of supply. The building will have an estimated cost of $47,000, exclusive of processing equipment. The plant will process bentonite clays, used in foundry molding, rotary oil well drilling mud and other industrial work. It will produce about 500 tons of processed material every 24 hours.

LOWER PHOSPHATE BED UNCOVERED—A $6,000,000 fertilizer industry which could be developed from a lower phosphate rock bed varying from five to seven feet in depth and containing 25 to 27 per cent of the materials needed for phosphate fertilizer, has been uncovered near Lander, Wyoming. The rock will be tested by the bureau laboratory at Salt Lake City and the natural resources institute at the University of Wyoming.

TRUCKING CONCERNS MERGE—Two of Wyoming's largest trucking concerns have merged. Salt Creek Freightways gained I.C.C. approval to purchase assets of Natrona Transport, bringing combined operating equipment up to 90 vehicles and blanketing the area from Denver to Billings and Casper, to Newcastle, Wyoming.

FRONTIER REFINERY CONVERSION — The Frontier Refining Company will double the size of its Cheyenne refinery at an estimated cost of $750,000. At present the plant has a crude oil capacity of 7,800 barrels per day. The announcement came upon the heels of the purchase of the government high octane gasoline refinery which the company operated during the war, turning out more than 30,000,000 gallons of high octane aviation fuel. Since the war, the government plant was operated on a rental basis until the company purchased it last spring.

WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

C. F. Breer

C. F. Breer has been appointed sales manager of McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles. He has been asst. sales manager for the past year. He will direct sales and advertising of light-weight industrial engines, target - aircraft engines, Haylo gas space heaters and other McCulloch consumer products. . . .

The **Frank D. Cohan** sales agency, closed during the war, has re-opened its Seattle branch office at 318 Douglas Bldg. **Fred. W. Vincent** will be manager. The firm handles lockers, steel shelving, gymnasium equipment and all types of bleacher seating. . . .

J. R. B. Freeman, formerly refinery sales representative for Bethlehem Supply Co. of California, has been appointed district manager of the San Francisco area, a new position. In Los Angeles, **R. B. Trimble** will take over Mr. Freeman's activities and **R. A. Casson,** in addition to his duties in the sale of pumping units, will take over Mr. Trimble's work in the ale of sucker rods and wire rope. . . .

The Pacific Division of L. Sonneborn Sons, Inc., 110 Rosemont, Los Angeles 26, appoints **William P. Schwindt** as special representative in northern and central California and the San Francisco-Oakland Bay area. Company manufactures paints, floor treatments and waterproofing specialties.

Mobilift Corporation, formerly the General Equipment Co., have established a new San Francisco office at 725 Second St. **R. M. (Dick) Lewis** will be manager and **Donald A. Kinsley** sales representative. The home office is located at 835 S. E. Main Street, Portland, Ore. . . .

Manufacturers Marketing Service, Menlo Park, Calif., have been named direct factory representatives for the Pacific region for Stocker & Yale, Marblehead, Mass., makers of miniature fluorescent miscroscope and general utility lamps. . . .

E. W. MacCorkle, Jr., has been named manager of the Portland, Ore., offices of Pure Carbonic, Inc., located at 2949 N. W. Front Ave., succeeding **E. R. Hodson.** . . .

The Cold Metal Products Company, Youngstown, Ohio, has made four new appointments in its West Coast operations. **Howard W. Smith** has been named general manager of West Coast operations with headquarters at the Western Warehouse Division, 6600 McKinley Ave., Los Angeles; **C. N. Wrobbel** has been named sales manager of the Western Warehouse Division, and **Frank D. Locker** has joined the sales organization there. Another new member is **William F. Skeer,** who will have headquarters in the Russ Building, San Francisco. . . .

Green-Penny Company has moved into larger quarters at 42 East Washington Blvd., Los Angeles. This concern handles a complete line of material handling and industrial equipment, not including machine tools. . . .

D. B. Karlskind has been appointed Pacific Coast sales manager of the U. S. Rubber Company's wire and cable department, with headquarters at 300 Second Street, San Francisco. Previously he was midwestern district engineer of the wire and cable dept. for the company.

N. T. Peterson, formerly chief engineer for Standard Conveyor Co., Los Angeles plant, has organized the **Acme Conveyor and Engineering Co.,** located at 1328 South Boyle Ave., Los Angeles. The company has been appointed direct factory dealer of Ruger hydraulic load lifting devices, and will also feature sales and engineering service on all types of conveyors from single portable units to complete installed systems. . . .

Carroll V. Roseberry

Carroll V. Roseberry, Oakland, sales engineer for Westinghouse in the San Francisco Bay area since 1936, has been appointed asst. Pacific Coast district manager for the Central Station Division, Westinghouse Electric Corp. He will assist W. P. L'Hommedieu, district Central Station and transportation division manager, and various branch offices. . . .

Nels S. Gustafson & Co., manufacturers' representatives, 778 Natoma St., San Francisco, have opened a branch at 1011 S. Los Angeles St., Los Angeles, with **Nels S. Gustafson** in charge. **Robert Lortz** will have charge of the San Francisco office. One of the most active lines handled by this distributor in Size Control reversible plug gages for determining the accuracy of machine and equipment parts, and centerless lapping machines for giving precision finishes to cylindrical parts. . . .

R. M. Parrish has been appointed to the sales staff of the Portland, Ore., district office of SKF Industries, Inc., makers of ball and roller bearings. . . .

The major output of General Electric Company's new glyptal plant at Anaheim, Calif., will be sold on the West Coast by the **Paul W. Wood Company.** General offices are at San Francisco, with sales offices in Seattle and Los Angeles. . . .

A. J. Stevens has been named machinery resale manager for the Westinghouse Electric Corp., Pacific Coast district, with headquarters in San Francisco.

Edward S. Hochuli has been appointed manager of marine sales for the northern California division of General Electric Corp. . . .

R. R. Young has been named field architect for the Pacific division of the replacement tire sales division of the B. F. Goodrich Co., Los Angeles. . . .

George Miles, Jr., electrical-merchandising manager for the Westinghouse Electric Corp., at Seattle, has been named West Coast divisional manager for the Majestic Radio & Television Corp. and Majestic Records, Inc.

E. P. Gesellchen has been appointed Western sales manager for Flotill Products, Inc., Stockton. . . .

A. R. Robinson has been appointed manager of the Seattle branch of John A. Roebling's Sons Co., Trenton, N. J.

General Electric Supply Corp. appoints **F. L. Suddith** manager of the Butte, Mont., office, succeeding the late **James L. Fahey.** Suddith has been manager of the Billings, Mont., warehouse, where **H. R. Ellerby** will succeed him. The Butte office covers Montana, northern Wyoming and the Black Hills region of South Dakota, and handles complete lines of construction materials as well as both major and traffic appliances. . . .

Republic Supply Co. of Calif. appoints as directors: **H. M. Giller,** manager of stores; **M. D. Jayred,** salesman in the Los Angeles area; **Roy W. Johnson,** vice-president in charge of the Oakland and Fresno stores; **C. E. Schriber,** manager of purchases; and **R. L. Temple,** sales manager of industrial sales. **C. B. Williams** appointed purchasing agent and **R. E. Deshon** manager of quotation and order departments.

Permanente Metals Corp. names **Eagle Metals Co.,** Seattle, as Northwest distributors for Kaiser aluminum sheet, strip and plate. . . .

Claude E. Harper, formerly Hawaiian division manager of Permanente Cement Co., has been named assistant general manager of the Standard Gypsum Co. of California which has started production at its new gypsum lath and board plant in Long Beach. . . .

J. B. Fordyce Co., 827 W. Olympic Blvd., has been named exclusive distributor in Southern California for Roto-Cut Corp.

Gil Moore & Co., 4031 Goodwin Ave., Los Angeles, has been appointed by the Swartwout Co. of Cleveland to handle their industrial roof ventilator line in Southern California, Arizona, and New Mexico. . . .

The **Robert M. Taylor Co.** office has been reopened at 314 W. Olympic Blvd., Los Angeles 15, under the direction of **M. F. Kuhlman,** sales engineer. . . .

Robert O'Brien

Robert O'Brien has been named sales mgr. of Kenworth Motor Truck Corp., Seattle, and **F. L. Foote** sales mgr. of the bus division. O'Brien, with the company since 1943, formerly had charge of scheduling truck production from the sales department to the engineering and production depts. Foote, formerly with the Everett Pacific Shipbuilding & Dry Dock Co., joined Kenworth two years ago as bus salesman.

(Cont'd on page 92)

Trade Winds

(Continued from page 91)

Taylor Felt and Supply Company appoints **Grant L. Smith** as resident salesman in the southern California territory, with headquarters at 11644 Ventura Blvd., North Hollywood. Company represents the Felters Company, makers of industrial wool felt. . . .

Paul Rhodes

Hyster Sales Company has opened offices at 2105 S. E. Seventh Ave., Portland, Ore., for distribution of Hyster fork-type trucks, straddle trucks and Karry Kranes. New purchasing agent for the **Hyster Company** is **Paul Rhodes**, who will make his headquarters at the Portland main office. Mr. Rhodes has been with the company since September, 1945.

Metallizing Company of America recently opened an office in Oakland, Calif., at Room 715 Latham Square building. District manager **W. W. (Bud) Allerton** will be in charge. Also, **Sam E. Johnston** has taken over the Seattle office at 519 White Building, and **Allan Lyons** has been promoted to the metallizing division of the company at Los Angeles.

Thomas B. Moule, who served as assistant director of sales in the Los Angeles office of the Plomb Tool Co., has been assigned the responsibility of supervising Plomb's expanded sales organization in the eastern half of the U. S. He will be succeeded in Los Angeles by **Jack G. Allen**, who will also supervise the export department. . . .

Stanley M. Brown Associates, 6367 Wilshire Blvd., has been given exclusive representation in the Western states for Rose industrial handling equipment, a line of factory and warehouse trucks, casters, corrugated steel boxes, dump hoppers, pallets, skids, manufactured by Rose Truck & Caster Co. of Detroit. . . .

General Mills, Inc., appoints **Willard F. Toevs** sales manager of the general flour department at Great Falls, Mont., succeeding the late **Clinton L. Jackett**. He will be responsible for sale and distribution of family and bakery flour produced at plants in Great Falls and Kalispell. . . .

Anthony Horne has joined the sales and engineering staff of the Horne Machinery Co., Inc., 1188 Harrison St., San Francisco 3, dealers in food and beverage processing and package equipment. . . .

Nelson Electric Corp., 1620 Euclid St., Santa Monica, Calif., has named **H. N. Leuckel** as purchasing agent. Mr. Leuckel was formerly chief purchasing agent for Air Communications, Inc., Kansas City. . . .

Salsbury Motors, Inc., Northrop subsidiary, has announced appointment of **McCune-Merifield Co.**, 2627 Figueroa St., Los Angeles, as factory representative and distributor in eight southern California counties for the Salsbury industrial line. . . .

F. O. Hutchinson named president and manager of **DoAll San Francisco Co.**, with offices and salesrooms at 952 Howard St. Mr. Hutchinson was formerly active in sales and engineering operations in New York State. Company will add sales personnel and machinery lines. . . .

Otis Elevator Co. elects **L. W. Whitton**, formerly of San Francisco, as vice-president. Joining Otis in 1919 in San Francisco, Mr. Whitton has been construction manager on the Pacific Coast and general sales engineer for the zone, prior to his transfer to New York headquarters in 1936 as general construction engineer. . . .

Douglas Stark, formerly with Western Air Lines, Inc., San Francisco, joins Slick Airways, Inc., San Antonio, Texas, as sales representative for the San Francisco branch in the Shreve Bldg., Post and Grant. Fred Wilkinson is reg. sales mgr.

E. Van Vechten has been appointed director of procurement and materiel for **Pacific Airmotive Corporation**. He will be responsible for purchasing, material planning, material control, warehousing and traffic. Van Vechten comes to P.A.C. from the Weatherhead Co., where he has been Western sales manager for the past four years. . . .

M. Victor Walberg has been appointed sales engineer and commodity manager of the stainless steel division for Pacific Metals Co. He formerly was with Columbia Steel. . . .

R. P. Stemmler has been named head of the Los Angeles tool steel division for Allegheny Ludlum Steel Corp. . . .

Desmond Gamble has been appointed sales representative of McNally Pittsburg Foundries, Inc., Pittsburg, Kans., to be in charge of all territory in the western half of the country. . . .

H. S. Gannaway, formerly representative in Pacific Northwest div., Portland, appointed U. S. Tire district mgr. of the Spokane sales district, succeeding **L. E. Chalenor**, retired. . . .

E. H. Vockrodt, 3757 Wilshire Blvd., Los Angeles 5, has been appointed Pacific Coast representative by **Alloy Steel Products Co.** of Linden, N. J., manufacturers of corrosion resisting valves and fittings.

Frank A. Carson has been appointed Seattle division manager for Blake, Moffitt & Towne.

Ralph B. Pahlmeyer

Pacific Rubber Company, Oakland, appoints **Ralph B. Pahlmeyer** as merchandising representative for northern California. He was associated with the B. F. Goodrich organization for 18 years, and was manager of their Oakland branch for the past eight years. . . .

The **Tapecoat Co.**, Evanston, Ill., has appointed **Gene McIntyre**, 727 W. 7th St., Los Angeles 14, to represent Tapecoat pipe joint protection material in California, Washington, Oregon, Nevada, and Arizona.

Carl Degener succeeds Al Janke as Western field engineer in charge of machine tools for Cincinnati Milling Machine Co., with headquarters at Harron, Richard & McCone in Los Angeles. . . .

E. B. Dodds will head the roofing and siding division of Permanente Products Co., distributor of Kaiser Aluminum, in the 11 Western states, with headquarters in Oakland. **Milt Eisele** now heads the new building materials division. Other new heads at Permanente are **Fred Drewes**, in charge of pig and ingot sales; **J. L. Joubert**, product specialist; **T. W. F. Foster**, sales engineer. **Eagle Metals Co.**, of Seattle, has been awarded the Northwest distributorship for Kaiser aluminum sheet, strip and plate. Territory includes Oregon, Washington, Montana, Idaho, and Wyoming. . . .

The Western Asbestos Co. will be exclusive distributors in northern California for Alwintite aluminum windows, manufactured by the Aluminum Window Corp., a subsidiary of General Bronze Corp., Long Island City, N.Y.

John R. Gregory has been appointed Pacific Coast representative for steel plant sales for Blaw-Knox Co. . . .

INDUSTRIAL PROPERTIES
SALES • LEASES
COMPLETE COVERAGE
Up-to-the-Minute Lists
Warehouses - Buildings - Lofts - Plants - Factory Sites
— Appraisals —

COLDWELL, BANKER & COMPANY
REALTORS
57 Sutter Street — SAN FRANCISCO 4 — Phone: SUtter 1-5420
425 - 15th Street — OAKLAND 12 — Phone: GLencourt 1-7300
523 W. 6th Street — LOS ANGELES 14 — Phone: MADison 7811

Walton SPEED REDUCER
Locally Made for Western Industries

Capacities: ¼ HP to 7½ HP Standard Ratios: 6:1 to 96:1
Modifications to Suit Your Needs
Anti-friction Bearings Throughout
Distributed by
KAELIN ELECTRIC CO.
1412 So. Los Angeles Street
Los Angeles 15, Calif. — Richmond 6179

NEW METHODS MATERIALS EQUIPMENT

That Will Help To Cut Your Production Costs

• The Hough Payloader (605) which features a 4-speed fully reversible transmission.

605

Payloader With 4-Speed Transmission

Powered by International UD-9 Diesel, the Hough Payloader features a four-speed fully reversible transmission which provides practical forward digging speeds plus high reverse speed. A single lever for shifting gears into desired speed range, a bucket which is raised, lowered, dumped and relatcher by hydraulic power, are a few of the new features claimed by The Frank C. Hough Co., Libertyville, Illinois, manufacturers.

606

Pneumatic Tools— 28 New Ones

Offering not one new product, but 28, Skilsaw, Inc., Chicago, has begun production of a line of pneumatic tools, including pneumatic hammers, drills, screwdrivers, nut runners and die grinders.

The new line features compactness and light weight. Of the drills, screw drivers and nut runners, no model is longer than 7¼ in. or heavier than 2¾ lb. Optional speeds and sizes of each tool are available.

607

Drive-Punch Instead of Drilling

A new industrial powder-powered tool named "Drive-It," which instantly drives anchor studs as much as three inches into average concrete, punches holes through steel plate up to ⅜ in. in thickness and rivets two steel plates together totalling as much as ¾ in. in thickness, has just been introduced by the Powder Power Tool Corporation of Portland, Oregon.

This tool eliminates the tedious work of drilling a hole in concrete with the conventional star drill for the insertion of expansion shields and bolts.

608

Pressure Regulator Checks Ice Formation

Because carbon dioxide gas is highly refrigerant and freezes so easily, the Victor model pressure regulator is designed to eliminate dry ice from working parts as soon as it is formed.

This regulator features an internal nozzle mechanism which automatically removes any dry ice formation from the seat. Manufactured by Victor Equipment Co., San Francisco.

609

Eliminate Stoop, Stretch, Strain

Speedy, safe and easy handling of tote pans is accomplished with the storage-battery-operated Service Tote Pan Lifter manufactured by Service Caster & Truck Corp., Albion, Michigan.

Controlled by a push button on the handle, and powered with two six-volt batteries, the lifter has a capacity of 150 pounds.

Protection of the operator's feet is provided by safety hoods mounted on the lifter's Forgeweld swivel caster running gear.

610

New Lacquer Requires No Heat

Western States Lacquer Corp., Los Angeles, has announced the development of Krink-A Lac, a lacquer product that has the appearance of a "wrinkle" finish, but which does not require heating or baking, nor special spray gun equipment.

It may be used on wood, metal and cardboard, and also on thermosetting plastics

(Cont'd on page 94)

Yessir! I'm Interested in Anything New That Will Help Me Do a BETTER JOB.

WESTERN INDUSTRY
503 Market Street
San Francisco

Please send me information on the following items:.....

.....

.....

.....

Name..... *Title*.....

Company.....

Address.....

New Methods, Materials, Equipment

(Cont'd from page 93)

after priming with a special primer. It will dry in 30 minutes, ready for packaging and shipping in two hours or less.

611

Welding Flux For Stronger Weld

A new welding flux called Thermo-Lo Blue is offered by the Farrelloy Co., Philadelphia 21, Pa., as a product of war time research.

Features are catalytic action, dehydration, finer ground, and formula offering better weld at lower temperatures, better envelope on surface, assuring clean, nonporous and stronger weld.

Thermo-Lo Blue is dehydrated in manufacture and ground as fine as face powder, so that it clings to welding rod but does not lift off the work while temperature of metal is being raised with the torch.

612

Stack Coating To Take the Heat

A new stack coating designed for diesel exhaust pipes, boiler breechings, stacks and other high temperature uses, has been developed to withstand continuous heat up to 600 degrees F.

Based on Silicone Resins and specially formulated, it is called Amercoat No. 1132, and is made by Amercoat Division, American Pipe & Construction Co., Los Angeles 54, Calif. Company also claims excellent resistance to corrosive chemical conditions and weathering.

613

Alcoa, Kaiser Offer New Aluminum

Kaiser Aluminum and Aluminum Company of America have each introduced new aluminum materials.

The Kaiser products include a utility sheet designed to replace steel for many uses. The sheet may be fabricated with regular equipment on hand in any sheet metal shop and is particularly adaptable to industrial applications where bending, lock seam joining, light weight, non rusting characteristics and ease of handling are desirable. Kaiser also is offering a new alloy for use as roofing and siding, and pig and ingot aluminum to serve fabricators who operate their own foundries for the production of permanent mold, die, and sand castings.

Alcoa's newest addition to their regular line is a high-quality roofing material for industrial use, to be called Alcoa Industrial Roofing. Alcoa describes it as combining high strength, exceptionally high resistance to industrial atmospheres, minimum maintenance and reduced roof load. It will have a covering width of 32 in., allowing for a side lap of 1 ½ corrugations, and will come in 5-foot through 12-foot lengths, .032 in. thick.

614

Liquid Fuse For Leaky Boilers

Plumbers and heating contractors will be interested in the new plumber's boiler fuse, developed by the Penetone Co., Tenafly, N.J.

The product, a liquid, is a colloid which seals leaks in high and low pressure boilers, radiators, piping, valves, heaters, etc. When poured into the heating system or boiler, it immediately fills in the leaks with a lasting pressure-resistant seal.

615

Heavy Duty Spray Gun Nozzle

For the spray gun a nozzle is offered that will handle many kinds of compounds from shingle stain to asbestos fibred aluminum paint.

The unconventional design of the nozzle, interchangeable in a matter of seconds from pole gun to hand gun, makes it possible to handle fibre impregnated compounds. Opening is round in cross section,

yet it delivers a fan-shaped spray, without clogging, evenly distributed over a wide oval without use of side wings, and with minimum of overspray.

A. Shelbourne Co., Los Angeles, makes it and has it available in both hand and pole gun models.

616

Canners' Belt Is Back

Manufacture of its special conveyor belts for canning, discontinued because of the rubber shortage during the war, has been resumed by the B. F. Goodrich Co.

The Sani-White canners' belt has a white cover, with the other rubber in its construction a special black non-staining compound, and it is also available with white top and black bottom cover. All belts are non-toxic.

617

Cold Fruit In the Plant

Weary workers will welcome the cold fruit now being made available in the plant by a vending machine called the "Fruit-O-Matic."

Machine can deliver refrigerated fruit anywhere from 1 cent up to 10 cents and make the correct change. Each vendor is

quickly loaded with 208 pieces of fruit. Display glass is designed to prevent frosting and displays about 90 individual pieces of fruit seperately suspended. It can deliver four different types.

Available through J. H. Oatey, president, Kold Krisp Apple Service, Inc., Van Nuys, Calif.

618

Four Steels For Cheaper Manufacturing

Aiming at lower material and manufacturing costs for steel fabricators, Carnegie-Illinois Steel Corp. has put on the market a series of four improved carburizing steels which can be easily processed and machined into airplane, truck, bus and other gears, shafts and pinions subject to heavy-duty service.

Through alloying elements and a special manufacturing technique, Carnegie-Illinois claims for the new steels, called SuperKore, hardenability equal to or greater than more highly alloyed grades now in use, thereby maintaining high core strength and toughness. In addition they have improved carburizing characteristics, are easier to anneal and possess substantially improved machinability.

619

Portable Pipe Threading Machine

A pipe threading machine for use either as a permanent or portable installation is being made by Century Engineering Co., Los Angeles.

Constructed of a special tough heat-treated aluminum alloy and weighing only 220 pounds, the Thread King cuts, reams, and threads pipe of ½ to 2 in. in diameter. Larger sizes up to 8 in. may be handled with a special drive shaft.

Simple construction and operation make possible fast work by inexperienced operators.

620

Differential Air Engines

For general industrial applications National Pneumatic Co., Rahway, N. J., is offering a new line of differential air engines of various sizes and ratings.

The differential principle employed in these engines permits operation with only one controlled air line. Consequent simplicity in piping and controls makes the new N. P. engine particularly useful in multiple hook-ups or where controls are located some distance from the engine. Positive air power is obtained in both directions, so that, operating at 100 lbs. air pressure, standard N. P. differential engines are available in sizes to deliver "in-stroke" power ranging from 100 to 1335 lbs., and "out-stroke" power from 105 to 1070 lbs.

621

Automatic Protection From Corrosion

Protection for materials such as metals, foods, leather from rust, corrosion, mold and mildew is offered by a new dehumidifying machine which removes excess moisture from the air.

Automatic in operation, the Dryomatic Model D6A, made by Dry Air Products Corp., San Francisco 5, Calif., can maintain constant conditions through the use of a humidity regulator set at the desired relative humidity.

622

Handling Dies Made Easy

Designed to make handling of dies a smooth and easy job is a mover called the Service Liftable which takes dies from the storage shelf, rolls them across to the press and lifts them to exact press level.

With a capacity of 2,000 lbs., it can also be used as a work bench, truck and lifter. Lowered, top is 28 in. from floor; raised, 42 in. Available with rubber, plastic or metal wheels.

Service Caster & Truck Corp., Albion, Mich., is the maker.

623

For Safer Packaging

For safer and more rigid shipment General Box Company of Chicago has designed a crate which allows shipment either on side or end.

Recent application of the General Wirebound Crate was in packaging an unwieldy two-wheeled Simplex Servi-Cycle. Compactness was facilitated by removing front wheels, handle bars and rear tire. Parts were bolted to crate. Result was a compact, rigid package ready for rough treatment.

624

Drill Bits For Perfect Holes

A series of drill bits for boring holes in concrete, tile, brick or marble is being

Get Your Copy

OF THIS *New* BULLETIN

On "SAFETY" *Marking Tools*

FOR ALL INDUSTRIAL PURPOSES

You need this *New Bulletin*—if you use or buy marking tools. All types of "Safety" steel stamps and dies are illustrated and described—for every marking purpose. Enables you to choose the *correct* tool for your marking application. Write today—we will gladly send the number of copies you desire.

M.E. CUNNINGHAM CO.
SAFETY STEEL STAMPS

114 E. Carson Street — Pittsburgh 19, Pa.

SHAFER *Improved*

SELF-ALIGNING ROLLER BEARING
SPLIT PILLOW BLOCKS

Write for Bulletin

EDWARD D. MALTBY CO.

1718 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA
TELEPHONE RICHMOND 5285
PHOENIX OFFICE - 120 SO. FOURTH AVE. - TELEPHONE 3-3789

offered by the Rotary Concrete Drill Co., Pasadena 2, Calif.

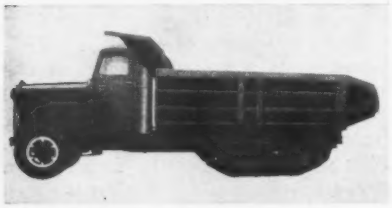
In sizes ranging from ¼ in. to 2 in. in diameter, the bits are designed for faster drilling and more perfect holes. They clean their holes as they drill. Company claims advantages of quietness, speed, ease of drilling and precision of holes.

They can be used in connection with any standard automatic drill. Diamond dressed cutting tips are set in the blunt end at an angle to permit extreme pressure sufficient to cut through hard rock.

625

New Model Haftrack

Designed for heavy duty industrial haulage a new model halftrack incorporates the following basic design improve-



ments: full contour traction for maximum engaged track area and increased stability, new long traction unit for greater load capacity and track area, higher speeds, either gasoline or diesel powered. Body styles available for contracting, oil drilling, cane hauling, mining, logging, snow removal and general industrial haulage.

Made by the Linn Manufacturing Corp., New York 19, and identified as New Model D-15 Linn Haftrack.

626

Oven Furnace For the Small Shop

Of interest to owners of small tool shops where floor space is limited is a new small oven furnace especially suitable for intermittent use in hardening punches, dies and small tool or brazing applications.

Furnace shell is of heavy gauge welded sheet with reinforcements to provide rigid furnace structure. Unit has been fully enclosed to protect parts against damage and to prevent workmen from coming in contact with any electrical or mechanical parts. Primarily designed for use where low pressure air is available, combustion equipment includes burner and mixer, which provides single valve temperature control. Temperature range is 1400 to 1600 deg. F.

Eclipse Fuel Engineering Co., Rockford, Ill., makes it and calls it New Model 1-B Eclipse.

627

Hand Protection In the Sawmill

Built to the specifications of one of the large Northwest mills, a new mitten, developed by Industrial Gloves Co., Danville, Ill., appears to be ideal in meeting the requirements for handling lumber in a sawmill.

Leather takes on a slick, hard surface very promptly. The mitt is left open at the top so the wood particles and chips entering at the wrist end can be easily expelled without taking mitt off. Thumb is designed to be splinter-proof. Mitt is reversible, can be worn on either hand.

WORLD'S EASIEST WAY
TO OPEN ANY BOX CAR DOOR

MONARCH ONE MAN CAR DOOR OPENER

One man can open the most binding balky box car door with the Monarch Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

★ No strained muscles. No slips or falls. No broken arms, legs or mashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

Write for free descriptive literature

THE NOLAN COMPANY, Dept. WI, Bowerston, Ohio
Formerly The Mining Safety Device Co.

PROMPT DELIVERIES
of laminated plastics and coated specialties
to Western Manufacturers

For the convenience of our Western customers, we've increased the capacity of our new plant at La Verne, Calif. If you seek a dependable source of supply for Phenol Fibre, Vulcanized Fibre, or other laminated plastics . . . if you want a processor to resin-coat paper, canvas, or glass-cloth . . . if you need overlays or face-sheets for plywood applications . . . we're ready to serve you *promptly*

TAYLOR FIBRE COMPANY
NORRISTOWN, PENNA.
PACIFIC COAST PLANT: LAVERNE, CALIF.
Offices in Principal Cities

HELPFUL LITERATURE

For the plant operator who wants to keep informed

2211

New Industrial Film for Shippers—How the industrial shipper can co-operate in combating the Nation's critical freight car shortage, Carnegie-Illinois explained pictorially in "High-balling," a new sound slide film available to industrial shippers from the Industrial Relations Dept., *Carnegie-Illinois Steel Corp., Pittsburgh, Pa.*

2212

Aid in Corrosion Problems — Aloyco's new 53-page looseleaf catalog No. 47 features a service information blank for the benefit of those manufacturers experiencing corrosion difficulties. This catalog is well illustrated and complete. *Alloy Steel Products Company, Inc., Linden, New Jersey.*

2213

Service "Along the Line" — An impressive catalog published by the Dresser Industries and including the following manufacturers is available: Bovaird & Seyfang, Bryant Heater, Clark Bros Co., Inc., Day & Night Mfg. Co., Dresser Mfg. Division, Dresser Manufacturing Co., Ltd., International Derrick & Equip. Co., Kobe, Inc., Pacific Pumps, Payne Furnace, Roots-Connersville Blower Corp., Security Eng. Co., Inc., Stacey Bros. Gas Construction, Van der Horst Corp. Book declares these industries devote their combined resources from field to consumer to finished product "all along the line." *Dresser Industries, Inc., Terminal Tower, Cleveland 13, Ohio.*

2214

Steel & Meat—Stainless steel's role in the meat industry is portrayed in the latest of a series of industry booklets published by Allegheny Ludlum Steel Corporation. The booklet tells how stainless steel was first used in the 1920's, the result of a search for metal that would not contaminate meat. Stainless steel paid off during the past war when the meat industry was called on to process record-breaking numbers of cattle, sheep and hogs with fewer men and less equipment, according to booklet. Copies of "Allegheny Metal in the Meat Industry" may be obtained free on request to *Allegheny Ludlum Steel Corporation, 2020 Oliver Bldg., Pittsburgh, Pennsylvania.*

2215

Conveyors Save Time, Labor, Costs—A new gravity conveyor catalog containing descriptions, photographs and specifications of an entire line of Rapid-Wheel and Rapid-Roller gravity conveyors and accessories said to be real time and money savers. The new catalog will act as a companion piece to the power belt conveyor catalog and caster manual issued earlier this year by the *Rapids-Standard Co., Inc., Grand Rapids 2, Michigan.*

2216

Centrifugal Pumps for Severe Wear—Specially designed for handling corrosive and abrasive liquors where severe wear is encountered, a new line of centrifugal pumps adaptable to the chemical, food and paper industries, has been announced by the Allis-Chalmers Mfg. Co. Pump parts subjected to rugged wear are all separate pieces and can be easily replaced. The new pumps are available in five sizes with capacities up to 1,300 gpm at heads to 275 feet. The new line described in booklet 08B6615 just released from *Allis-Chalmers Mfg. Co., Milwaukee 1, Wisconsin.*

2217

Cash in on Trucloader—"14 of the 101 Ways to Cash in on the Clark Trucloader" is the title of a new booklet describing the versatility of the Clark Equipment Co.'s 1,000-lb. fork-lift truck for handling a wide variety of lift-haul chores common to most industrial plants. The booklet presents 14 tabloid descriptions of the assignments in manufacturing plants. Obtainable from *Clark Tructractor, Battle Creek 32, Michigan.*

2218

Simple to Operate, Easy to Clean—Economy of operation and accuracy of results of the Titeflex Filter are described in the brochure just published by this firm. Clearly illustrated and fully explained as to construction and operation, Catalog No. 120 is available to all companies having need of filter applications. *Titeflex, Inc., Newark 5, New Jersey.*

2219

New All-Purpose Electric Tool—Using standard attachments, here's what the new Ingersoll-Rand universal impact tool will do: Apply and remove nuts, drill, ream, tap, drive and remove screws, drive and remove studs, extract broken cap screws and studs, run wire brushes, do hole saw work, drill brick and masonry, drive wood augers. The impact tool runs just as any conventional electric tool until the resistance to spindle rotation reaches a certain amount. Then a patented mechanism converts the power of the motor into "rotary import" which exert a more powerful turning effect than is produced by any other electric tool of comparable size. For further information write *Ingersoll-Rand Company, New York 4, N.Y.*, for booklet.

2220

Reduce Accident Hazards With Sol-Speedi-Dri—A bulletin newly issued explains the mining and manufacturing of this industrial fire-resistant, absorbent for greasy floors. Sol-Speedi-Dri claims to clean floors, tools, clothing, shoes and transmission belting by reclaiming the oil. Company says Sol-Speedi-Dri has over 101 uses. For bulletin, free sample or demonstration write to *Safety and Maintenance Company, New York 1, N. Y.*

2221

Humidity Control in Air Conditioning—A colorful eight-page booklet entitled "Humidity Control Is More Important in Your Plant Than You May Realize," has just been issued by Surface Combustion Corporation. The booklet explains the principle of operation and details of application of the Kathabar System of Selective Humidity Control for industrial processing applications. Mailed upon request by *Surface Combustion Corporation, Toledo 1, Ohio.*

2222

New Bulletin From Conco—A new eight-page catalog illustrating and describing in detail their complete line of hand-powered and electric cranes, hoists and trolleys has just been released by Conco Engineering. The new bulletin, No. 3000, is available upon request. *The Conco Engineering Works, Mendota, Illinois.*

2223

Varitronic Units for Motor Control—Bulletin 178 describes varitronic motor controls which operates from AC line and drives DC motor over wide speed range with powerful torque at all speeds. Also provides dynamic braking and reversing. No other equipment of any kind is necessary. Bulletin available from *Electron Equipment Corporation, South Pasadena, California.*

2224

New Looseleaf Bulletin on Crane Wheels—Catalog Sheet No. 4.05, Bulletin No. 3540 describes design features, industrial applications and other pertinent information on crane wheels and wheel assemblies. Booklet includes illustrations, engineering drawings and specifications. For free copy write *Downs Crane & Hoist Co., Los Angeles 37, California.*

2225

Literature on Materials Handling Aid—A bulletin has just been issued by the Magnesium Company of America to acquaint industry with the last word in modern materials handling. The MAGCOA light-weight magnesium dockboard replaces the heavy, cumbersome steel plates formerly used as a bridge between loading dock and freight cars or trucks. The center spread of the folder shows typical applications, and illustrates how one man can do the handling in complete safety. *Magnesium Company of America, Chicago 2, Illinois.*

2226

Need New Help? Try Synchro-Trol—Westinghouse puts out a new slick catalog to introduce the new Synchro-Trol, a line of synchromous precision AC controls for resistance welding in a complete, unified, factory-assembled package that eliminates the awkward, cumbersome, piecemeal buying of the past. *Westinghouse Electric Corporation, Buffalo, New York.*

2227

Advantages of Direct Contact Open Heaters—Three lines of open heaters for direct-contact heating of boiler feed and industrial process waters with available exhaust or live steam are described in Publication 4091 just published by Cochrane Corporation, water conditioning and steam equipment manufacturer. The new publication consists of 24 pages describing the characteristics of the various direct-contact open heater designs, accessories, actual installation photographs and flow diagrams together with supplementary data. Write for a copy of this bulletin to *Cochrane Corporation, Philadelphia 32, Pennsylvania.*

2228

Step Up Production—A recently published, illustrated booklet entitled "Step Up Production" is aimed at those engaged in finishing metal parts by grinding and polishing. This 16-page booklet features the "3M Backstand Method" and contains among other data nine photographic case histories of plants which were able to cut grinding and finishing time by adopting this method. *Minnesota Mining & Mfg. Co., St. Paul 6, Minnesota.*

2229

Kill Bacteria With Pittcide—Two booklets on Pittcide, the new germicide and bactericide, have just been released by Columbia Chemical Division of Pittsburgh Plate Glass Co. . . . Form B-751 is a 24-page booklet containing recommended instructions on how to use Pittcide as a sanitizing agent in bakeries; breweries; carbonated beverage plant; cheese factories; creameries; dairies and dairy farms; egg breaking, freezing and drying plants; evaporated and fluid milk plants; hospitals, schools and public buildings, etc. Form B-752 is a 16-page book describing the use of Pittcide to safeguard milk production. For copies write to *Pittsburgh Plate Glass Company, Columbia Chemical Division, Pittsburgh 13, Pa.*

Lift Trucks
Hoists & Cranes
Casters & Wheels

MATERIAL HANDLING EQUIPMENT

Barrett - Towmotor - Electrolift - Logan
American Pulley - Budgit - Dayco
Portable - Harris & Reed - Payson - Lewis
Ideal - Durant - Roll-Rite

IRVING G. KING & CO.
821 Mateo Street Los Angeles 21

RECO

RECTIFIERS

A Source of D.C. Power from an A.C. Line

- INDUSTRIAL TRUCK CHARGERS
- AUTO BATTERY CHARGERS
- ELECTRO-PLATING
- OTHER SPECIAL USES

RECTIFIER ENGINEERING CO.

Manufacturers of Industrial Battery Chargers and Rectifiers

1803 East 7th Street
Los Angeles 21, Calif. TUcker 5417

TOP ADVERTISING MAN AVAILABLE

• Executive of 10 years advertising & sales experience. 1 year major N.Y. agency, 3 yrs. AM Calif. industrial concern, 6 years AM & Space Salesman Western trade magazines. Outstanding record in sales, both contact work and sales letter writing; copy, layout & production of ads and sales promotion. Age 30, fine appearance, best references. Now Eastern Manager for Calif. trade magazines. Job is fine, but I WANT TO GO BACK TO CALIFORNIA!

BOX NUMBER 522
Western Industry 503 Market St.

ROGER D. McCOY
MECHANICAL ENGINEER

Machine Design, Plant Layout, Materials Handling & Packaging

San Francisco 17, California
1960 Hayes St. • SKyline 1-6331

INDEX TO ADVERTISERS THIS ISSUE

A

Acousti-Celotex Distribs. in the West 6
Anglo California National Bank 64
Anthony Company, Inc. 60

B

Baldwin Duckworth Division Chain Belt Company 30
Beall Tool Company Division Hubbard & Company 90
Blaw-Knox Division of Blaw-Knox Company 59

C

Caine Steel Company ..... 2nd Cover
California Barrel Company, Ltd. ..... 3rd Cover
California Spring Company, Inc. 61
California Steel & Construction Co. 76
Cleveland Cap Screw Company 28
Cleveland Worm & Gear Company 84
Cold Metal Products Company 9
Coldwell, Banker & Company 92
Colson Equipment & Supply Company 31
Columbia Steel Company 34
Conveyor Company, The 19
Crocker First National Bank 80
Cunningham, M. E., Company 95
Curtis Pneumatic Machinery Division Curtis Mfg. Company 86

D

Danly Machine Specialties, Inc. 13
Detroit Hoist & Machine Company 77
De Young Bros. Machinery Co. 76

E

Economy Engineering Co. 74
Electric Storage Battery Company 11
Electrolift, Incorporated 88

F

F. A. B. Manufacturing Co. 63
Fishstrom Staple Company 78
Fruehauf Trailer Company 20
Fuller, W. P., & Company 10

G

General Chemical Company 3
General Paint Corporation 87
Gilliam, C. T., & Assoc. 80
Griffin Chemical Company 73
Goodall Rubber Company 79
Gould Storage Battery Corp. 26

H

Hardesty Co., W. C., Inc. 73
Haws Drinking Faucet Company 88
Hetzel Brothers 90

J

Johnson Steel & Wire Company, Inc. 75
Johnston, A. P., Company 98

K

Kaelin Electric Company 92
Kelite Products, Inc. 89
King, Irving G., & Company 98
Kingwell Brothers, Ltd. 88

L

Latisteel, Incorporated 14

M

Mall Tool Company 85
Maltby, Edward D., Company 95
Marlow Pumps 77
McCoy, Roger D. 98
McDonald, B. F., Company 72
Modesto Terminal Company 82

N

Nolan Company, The 96

O

Oakite Products, Incorporated 75

P

Pacific Chemical Company Subsidiary of American Marietta Co. 67
Pacific Gas & Electric Company 56
Pacific Telephone & Telegraph Co. 83
Permanente Metals Corporation Kaiser Aluminum Division 51
Petley, Incorporated 80

R

Rectifier Engineering Company 98
Revere Copper & Brass, Inc. 4
Ridge Tool Company 81
Ruger Equipment Company, Inc. 21
Ryerson, Joseph T., & Son, Inc. 32

S

Sealol Corporation 89
Sharpe Manufacturing Co. 79
Shell Oil Company, Inc. 15
Signode Steel Strapping Co. 24
Smoot-Holman Company 54
Square D. Company 7
Standard Oil Company of California 18
Stauffer Chemical Company 8
Stephens-Adamson Mfg. Company ..... 4th Cover
Stuart Oxygen Company 63

T

Taylor Fibre Company 96
Thomas Truck & Caster Co. 72
Tubbs Cordage Company 78

U

Union Oil Company of California 22
Union Pacific Railroad 16
U. S. Hoffman Machinery Corp. 55
United States Steel Corp. 34

W

War Assets Administration ..... 68 & 69
Wells Fargo Bank & Union Trust Co. 82
Worthington Pump & Machinery Corp. 74
Wrigley, Jr., William, Company 66

Johnston Stainless Welding Rods

Anderson Equipment Co. Los Angeles
Arizona Welding Supply Co. Phoenix
J. E. Haseltine & Co. Portland - Seattle
MacDonald Co. Reno
Mahl Steel & Supply Co. Los Angeles
Renfro Products Co. Los Angeles

BOXES IN THE SWIM . . . Wooden containers-to-be are the giant fir logs a-swim in Cabco's pond. Felled in Cabco woods, rolled to pondside in our own trucks, soon they'll go clanking up the chain to Cabco's mill. And, in jig time, skilled men and special machines will send them forth as light, strong Cabco containers—to guard and protect the cargoes of commerce. Cabco's one-company operation from timber-stand to shipping platform makes possible the uniformity of lightness, strength and quality found in all Cabco containers. 1442

CABCO CONTAINERS

THIS IS OUR 64th YEAR

CALIFORNIA BARREL COMPANY, LTD.

100 Bush St., San Francisco 4, Calif • Offices: 2581 East Eighth St., Los Angeles 23, Calif.
501 Dooley Bldg., Salt Lake City 1, Utah • Plants: Arcata, San Francisco, Los Angeles, Calif.

DESIGNED TO FIT
...ENGINEERED TO PROTECT

Cabco all-bound corn crates are mass-produced from strong, light fir veneer. Like all other Cabco vegetable crates, they provide maximum protection, minimum weight, and unrivaled ease of handling. They come to you flat, in one piece, and may be opened or closed with bare hands. Write today for information on Cabco all-bounds engineered to your need.

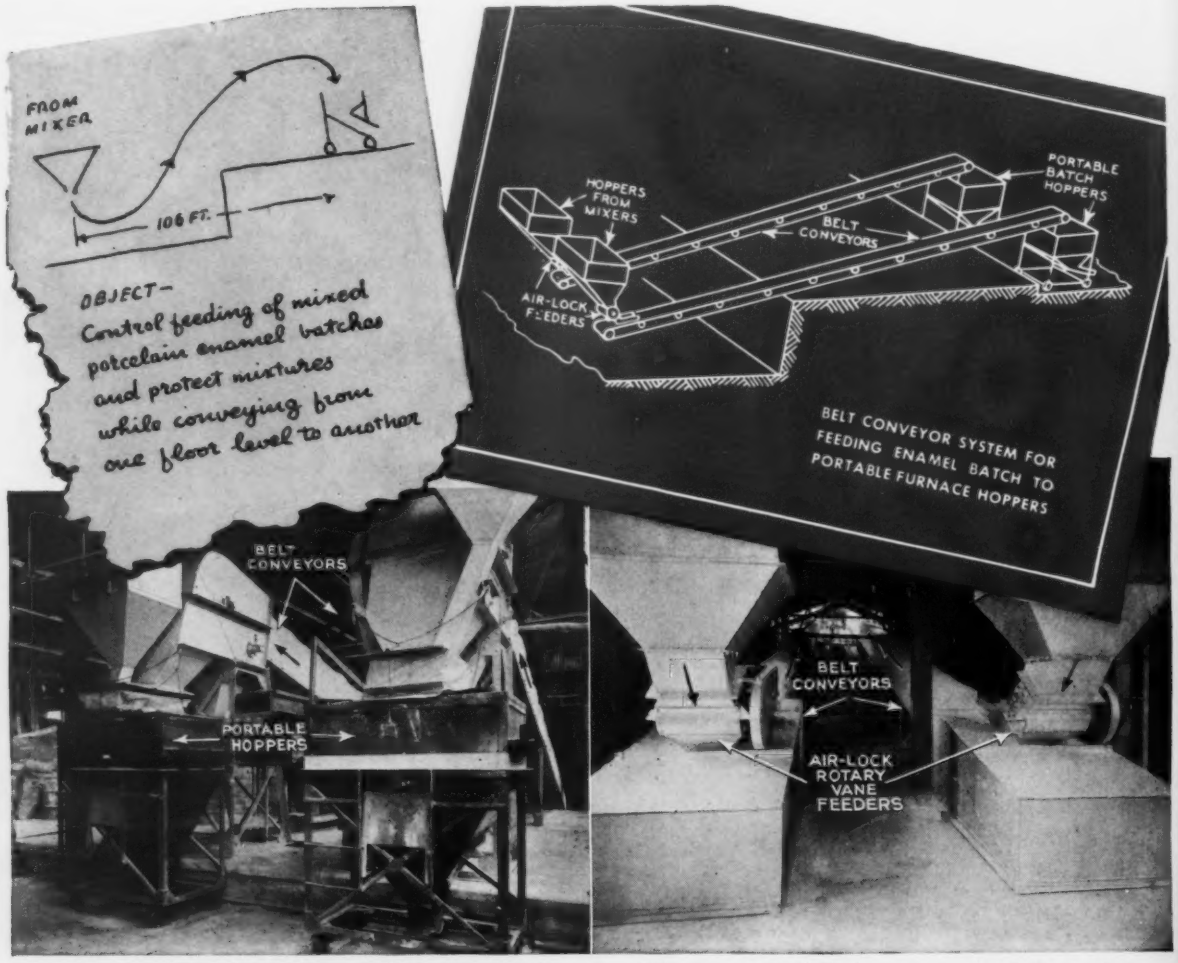
Exclusive sales agents:

DUFF CALIFORNIA CO.

Sawn Shook, Veneer, Barrels and All-Bound Containers
100 Bush Street, San Francisco 4, California
2581 East Eighth Street, Los Angeles 23, California

SEC. 573 P. L. & R.
U. S. POSTAGE
PAID
San Francisco, Calif.
Permit No. 4167

POSTMASTER—
If addressee has removed, notify sender on Form 3547, postage for which is guaranteed.
Western Industry, 503 Market Street, San Francisco.


FROM MIXER
106 FT.
OBJECT—
Control feeding of mixed porcelain enamel batches and protect mixtures while conveying from one floor level to another
HOPPERS FROM MIXERS
BELT CONVEYORS
PORTABLE BATCH HOPPERS
AIR-LOCK FEEDERS
BELT CONVEYOR SYSTEM FOR FEEDING ENAMEL BATCH TO PORTABLE FURNACE HOPPERS
BELT CONVEYORS
PORTABLE HOPPERS
BELT CONVEYORS
AIR-LOCK ROTARY VANE FEEDERS

Batch mixture is discharged into portable hoppers for delivery to melting furnaces. Conveyors and transfer points are enclosed to prevent dust and loss of light materials.

S-A rotary Air-lock feeders measure batch from mixer hoppers to enclosed belt conveyors, without aeration or surges of dry, pulverized material.

FEED IT RIGHT... KEEP IT RIGHT
with S-A Conveyors

In this plant, S-A engineers installed the above system for handling the light, dusty batch mixtures that are so difficult to control... resulting in a minimum of dust, prevention of waste and insurance of a more uniform product.

S-A rotary Air-lock feeders or gates, feed the batch without danger of aeration and sudden surges from the hoppers. The mixture is fed gently and uniformly to the S-A belt conveyors, which are enclosed to prevent contamination or loss in transit. Portable hoppers collect measured batches for transfer to melting furnaces as required.

In addition, the double belt conveyor system permits flexibility of volume and insures against complete shut down in case of accident to any one unit.

This installation is another example of S-A's ability to combine *right* engineering and *right* equipment for efficiency and economy.

STEPHENS-ADAMSON MFG. CO.
2227 E. 37th ST. LOS ANGELES 11 CALIF.